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XII FALL 1952 No. 4

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INDEX TO VOLUME XII

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1952

The Evolution of Business Organization and Management

PRICES AS A FACTOR IN BUSINESS GROWTH
Prices and Progress — *Earl J. Hamilton* — 325

ORIGINS OF MODERN BUSINESS ENTERPRISE
Medieval Italy — *Robert L. Reynolds* — 350
European Entrepreneurship — *Edgar Salin* — 366

DEVELOPMENT OF LARGE-SCALE ORGANIZATION
Electrical Manufacturing Around 1900 — *Harold C. Passer* — 378
The Soviet Steel Industry — *M. Gardner Clark* — 396
The Standard Oil Company (New Jersey) — *Ralph W. Hidy* — 411
Economic Implications — *Ben W. Lewis* — 425

AMERICAN FINANCIAL INSTITUTIONS
Bank Administration, 1780–1914 — *Fritz Redlich* — 438
The Marketing of Securities, 1920–1952 — *Donald L. Kemmerer* — 454

INDEX TO VOLUME XII — 469

In this issue of THE JOURNAL OF ECONOMIC HISTORY are published the papers read at the Twelfth Annual Meeting of The Economic History Association.

The program was arranged by the following committee: John G. B. Hutchins, Chairman, W. Thomas Easterbrook, Harold U. Faulkner, Paul W. Gates, Ralph W. Hidy, Warren C. Scoville, Abbott Payson Usher, Harold A. Williamson.

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THE JOURNAL OF ECONOMIC HISTORY

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PRICES AS A FACTOR IN BUSINESS GROWTH

*Prices and Progress**

IT MAY have been the ingrained pessimism of Bentham and McCulloch that provoked Carlyle to dub economics the dismal science. It surely must have been economists' concern over price theory, which they regarded and still regard as the central core of economics, that made the name stick. Studies of the role of prices in history are no less tedious and technical than price theory, and in hands no more skillful than mine they can be even more dreary. But this is not the worst of my worries. The evidence that I shall sketch supports the pessimistic hypothesis that during certain germinal periods price and wage behavior of the type that is now taking a distressing percentage of real income from all of us who live on our salaries has proved beneficial to society in the long run and that the type of price and wage behavior which would benefit most of us in the short run has had serious disadvantages. Yet I have the inner satisfaction of appearing to be objective in my thinking and fearless in airing my conclusions in a gathering of some of the worst aggrieved.

I

Price statistics reach centuries farther back into history than any other continuous time series that interest economists, historians, or our own peculiar hybrid, economic historians. Discontinuous and fragmentary data begin in the twelfth century. More extensive and accurate data begin at the time of the Black Death and continue for six hundred years. Although their neglect by price historians has been appalling,

*Presidential address at the Twelfth Annual Meeting of The Economic History Association, Oberlin College, September 12–13, 1952.

wage statistics easily rank second in time span. Despite glaring deficiencies and imperfections, of which all scholars who have compiled them are painfully aware, price and wage series are more comprehensive and reliable than figures on population, production, income, domestic or foreign trade, or any other economically significant phenomenon, covering any period as long as, say, fifty years before the nineteenth century. The preservation of the account books that provide the raw material for price and wage statistics in one country after another—with wide differences in institutions, culture, and economic development—is not accidental. What was preserved was precisely what was, and has continued to be, most important.[1]

Good as they are, however, in comparison with other statistics, even the best historical price and wage series are never good enough to meet all the needs of a scholar who wants to use them in studying any problem. Furthermore, the usefulness of the most adequate and reliable price and wage data is usually impaired by the lack of other statistics and of nonstatistical material that alone can reveal their true meaning. Seldom, if ever, do price and wage series and the necessary auxiliary data fall as short as in the present venture. For few areas and periods are prices for all major types of industrial products available. Almost all of the price and wage series are annual averages that fail to portray short-term movements. In some price series data for important years are lacking, and in some wage series there are no usable quotations for entire decades. In other cases crude averages for quarter centuries are the best that we have. The auxiliary statistics that one needs most are not merely defective and deficient but missing altogether. For example, I need for hundreds of representative firms for several hundred years the ratio of total annual wage payments to total costs; aggregate values of products sold; efficiency rates of wages, that is, the wage cost per unit of output; and profit and loss statements. None of these are at hand for any country in any year. Hence in connection with one of my main hypotheses, I can only say what "should have" happened in the light of the available evidence and of deductive reasoning—a sad plight for an economic historian. Whether what should have happened actually did

[1] Stanley Jevons contended that "the numerical data for estimating pleasures and pains [the basis for a true science of political economy] are more abundant and precise than those possessed by any other science. . . . The very abundance of our data is perplexing. There is not a clerk or bookkeeper in the country who is not engaged in recording numerical data."—*The Theory of Political Economy* (London and New York, 1871), pp. 12–13. Naturally the numerical data recorded by clerks and bookkeepers consisted almost exclusively of the prices and quantities of goods purchased and sold and of the wages and numbers of workers employed.

happen one cannot say until a great deal more material is unearthed in public and private archives.

Movements of the commodity price level have powerfully affected economic life, political institutions, and social relationships, since goods and services have been exchanged and debts have been incurred in terms of money. Both short- and long-term movements of the price level have increased or decreased the per capita capacity to produce goods and services with a given outlay in effort and sacrifice. Changes in our capacity to produce are the best measure of changes in our control over our environment, or economic progress,[2] as well as of what an economic system can contribute to progress in every other sphere. Inventory appreciation and a decline in the real value of debts when prices were rising have given businessmen unexpected profits and thus encouraged saving. Inventory depreciation and an increase in the real value of debts in periods of falling prices have inflicted unexpected losses and deterred savings. Rising prices have afforded a powerful incentive to invest pecuniary savings and thus increased productive efficiency through additions to capital equipment, and falling prices have induced hoarding of liquid savings and thus retarded economic development. But these effects have had sizable offsets. Many of the inventory and debt gains from rising prices have been at the expense of other capitalists, and many of the losses from falling prices have correspondingly benefited other capitalists. There have been no such offsets to the strong tendency during most of the last four hundred years for wages to lag behind prices whenever they were rising. This lag has benefited capitalists as a class at the expense of laborers as a class and awarded gains that dwarf into insignificance the profits from inventory appreciation and from declines in the real value of debts. A tendency for wages to lag behind falling prices has inflicted losses on businessmen, discouraged saving and investment, and aggravated commercial crises.

II

That medieval rulers robbed their subjects, upset economic life, and obstructed progress through frequent and unprincipled debasement of the coinage is often taken for granted in economic literature. Yet the

[2] This definition is strikingly similar to Friedrich List's contention that the goal of a national economy should be the development of productive power.—*Das nationale System der politischen Oekonomie* (Stuttgart and Tübingen, 1841), pp. 201–39.

long-term movement of commodity prices was *much* more stable in most of the areas for which we have reliable data in the last two centuries of the Middle Ages than in any country during the last two centuries of modern times.

One of the few periods in the Middle Ages that witnessed a sharp and sustained rise in prices was 1350–1380, the generation after the Black Death. The Black Death substantially reduced the population of western Europe precisely when revival of the coinage of gold in England, Flanders, Germany, Castile, and Aragon indicates that there was a significant increase in the money supply. Subsequent epidemics held down population and trade for about three decades; and Silesia, Hungary, Crimea, and northwestern Africa continued to pour gold into western Europe. Consequently the price level moved briskly upward. In Navarre, for example, commodity prices rose 30 per cent in terms of a fixed weight of fine gold in 1350–1380 and doubled in terms of money of account. But decimation of the population by plagues and feudal restrictions which further limited the supply of labor forced wages upward faster and farther than prices. Hence there was no increase in large incomes, capital formation, or economic development. The check to population growth also impeded progress directly.

In the last two decades of the fourteenth century and throughout the fifteenth, a considerable growth in population, trade, and the proportion of goods exchanged for money lowered commodity prices in England, France, Aragon, and Valencia—four areas for which we have data.[3] But the steady flow of specie to the Far East exerted the strongest downward pressure on the price level. Since winter pastures were poor and fodder production low, livestock was slaughtered in the fall; and the meat was doubtfully preserved. The per capita consumption of spices even by the poverty-stricken common people had to be high in order for meat to be palatable.[4] Specie was highly prized in the Far East, and western Europe was turning out few products that had high value in small bulk and that appealed to Far Eastern buyers.

[3] For England and France, see the data collected by J. E. T. Rogers, Vicomte d'Avenel, Emile Levasseur, and others which Professor A. P. Usher has elaborated and presented in two excellent articles.—"The General Course of Wheat Prices in France, 1350–1788," *Review of Economic Statistics,* XII (1930), 159–69; "Prices of Wheat and Commodity Indexes for England, 1259–1930," *Ibid.,* XIII (1931), 103–13. For Aragon and Valencia, see Earl J. Hamilton, *Money, Prices, and Wages in Valencia, Aragon, and Navarre, 1351–1500* (Cambridge, Mass., 1936), pp. 59, 105.

[4] "This is certain: the per capita consumption of spices in the late Middle Ages was incomparably greater than in our time."—Fritz Rörig, *Mittelalterliche Weltwirtschaft* (Jena, 1933), p. 17.

Hence there was a heavy and constant flow of specie to the Orient. Instead of going into circulation, raising prices, and so impeding the flow, the precious metals passed into Oriental hoards. If medieval rulers had not sought to relieve distress and to replenish royal treasuries during depressions by debasing the coinage and crying it up in terms of money of account, prices would have been depressed sufficiently to lower profit margins, deter savings, and limit progress. For example, in the second half of the fifteenth century Valencian prices fell only about 6 per cent in terms of money of account, and a little more than 20 per cent in terms of a fixed weight of fine gold. In the same period Aragonese prices fell less than 10 per cent in terms of money of account and more than 35 per cent in terms of a fixed weight of fine gold.[5]

It would be extremely interesting, however, to know whether the alternate debasement and crying up of the coinage in periods of falling prices and restoration of the specie content and crying down in periods of rising prices, which gave surprising stability to prices in the long run, may not have intensified short-term instability. In the hundreds of medieval monetary decrees and mint ordinances which I have examined there has been little evidence of capricious or arbitrary exercise of power. The Crown consulted mint officials, officers of the merchant guilds, and leading businessmen; and treasury officials deliberated at length over monetary policies. The number of advisers, consultants, and ministers involved was entirely too great for contemplated changes to be kept secret.

Consequently, in periods of rising prices the public anticipated an increase in the specie content of the coinage or its devaluation in terms of money of account. Naturally, bullion was rushed to the mints, payments due in foreign money were postponed, and goods were bought by traders and consumers in advance of needs. Women as unbusinesslike as nuns bought commodities as perishable as eggs in large quantities in an effort to avoid losses through an increase in the specie content or a reduction in the denominational value of coins. Hence the rise in prices was accentuated. When deflation came, merchants were long on goods; and, with their money marked down, they felt acutely short on cash. Obviously merchants were eager to sell; and buyers, with business depressed, their cash depleted, their needs anticipated, and their future insecure, were disinclined to purchase. A sharp drop in commodity prices was the inevitable result. When prices were

[5] Earl J. Hamilton, *op. cit.*, pp. 59–60, 105.

falling and the Crown was considering, and the public expecting, debasement of the coinage or an increase in its denominational value, it is reasonable to believe that bullion was not sent to the mints, many foreign obligations were paid before they fell due, purchases by traders and consumers were postponed, and the price decline was aggravated.[6] Hence it may well be that the annual commodity price series available for the Middle Ages fail to reveal highly injurious short-term fluctuations of prices that inevitably resulted from the policies that provided long-term stability.[7]

Deflation through writing down bank deposits and destroying currency, in effect, crying down money, has been the commonest type of monetary reform in recent years [8] and is likely to continue in medieval fashion, alternately with inflation of paper currency and bank deposits in a distinctly modern and sometimes violent fashion. Hence intensive studies of monthly or even weekly changes in commodity prices, monetary regulations, and deliberations on monetary policy in economically advanced areas during medieval and early modern times might yield rich scientific and practical rewards. The most promising areas for investigation are probably Genoa, Florence, and the other Italian city states that led the world in commerce, industry, and finance in the late Middle Ages and that have led the world ever since in the preservation of account books and other sources of economic history.

III

From the beginning of the sixteenth century substantial amounts of gold from the New World began to flow into Europe through Spain, and in 1519 the first imports of silver from Mexico arrived. The discoveries of the great silver deposits at Zacatecas, Guanajuato, and Potosí and perfection of the mercury amalgam process for extracting silver, all of which occurred between 1545 and 1560, brought a flood of silver that surpassed the dreams of the conquistadores. The influx of treasure continued at an ever-increasing rate until the close of the sixteenth century, tapered off with a decline in the output of the American mines until

[6] The keen analytical faculties of Richard Cantillon were never used to greater advantage than in dealing with the effects of crying money up and down. See his *Essai sur la nature du commerce en général* (London, 1755), pp. 382 ff.

[7] For a view of medieval monetary policy even more favorable than mine, see Luigi Einaudi, "The Medieval Practice of Managed Currency," *The Lessons of Monetary Experience*, ed. A. D. Gayer (New York, 1937), pp. 259–68.

[8] For example, in the Netherlands in 1946 and Western Germany in 1948.

about 1640, and fell sharply after that date. As David Hume was later to demonstrate, no mercantilist devices, of which Spain neglected few, could enable her to retain the specie. It flowed into Italy, Holland, France, England, and Portugal. In England, France, and Italy—the countries for which we have data—prices rose moderately in the first half of the sixteenth century, with the beginning and the magnitude of the upswing largely depending upon the political and commercial relations with Spain, and very rapidly in the second half of the century. In the first half of the seventeenth century the Price Revolution continued, but at a slower rate, owing to an increase in population, output, and trade and to the decline in specie imports. In Spain the peak of commodity prices in terms of silver was reached at the beginning of the seventeenth century, and in most other countries of western Europe the peak came about fifty years later. In both Spain and England peak prices in terms of silver were about three and one-half times their 1500 level. The over-all advance was at the average rate of less than 1 per cent a year in England and less than 2 per cent a year in Spain, much less than any country in the world has experienced in the first half of the twentieth century. Yet never before had Europe witnessed such a great or such a long sustained rise in prices.

The importation of spices—already great, as we have seen—rose phenomenally after the discovery of an all-water route to the East Indies around the Cape of Good Hope, by Vasco da Gama in 1497. As in the Middle Ages, Europe paid for spices largely with specie; and the precious metals were hoarded and thus retained in the Orient. The enormous loss of treasure disturbed mercantilist writers and statesmen in the leading countries of Europe for the next two centuries. Whether European economic development could have continued at a satisfactory rate if the New World had not at least replenished the specie that flowed to the East in exchange for spices after they had been relatively cheapened by the discovery of the all-water route is an interesting question. Systematic debasement and crying up of the coinage to relieve the distress of consumers and impecunious monarchs during depressions might have filled the void in circulation. But despite the effectiveness of medieval monetary policies under less trying circumstances, I doubt that the necessary measures would have been adopted with the rapidity required to prevent economic stagnation and long and severe crises at frequent intervals under the stress of chronic deflation. Furthermore, no matter how well the price level and domestic trade might have been maintained through monetary manipulation, commerce with the Far

East could not have flourished as it did without the great supply of bullion from the New World.

Trade with the East Indies by the Cape route proved almost incredibly lucrative. Business history offers few examples of higher profits than were obtained on some of the early voyages to the spice islands or of sustained earnings that rival those of the English and Dutch East India Companies during the seventeenth century. For example, it is said that "Da Gama returned to Lisbon in 1499 with a cargo which repaid sixty times the cost of the expedition," [9] or a profit of 5,900 per cent. Although Magellan's voyage around the world was undertaken for exploration rather than for trade, the *Victoria,* sole survivor of his five vessels, returned with a cargo of spices comparable in value to the specie carried by the average Spanish treasure ship at that time.[10] I know of no satisfactory data on the profits Portugal obtained from commerce with the East in the sixteenth century, during practically all of which she had a monopoly; but figures are not lacking for Holland, the nation that supplanted Portugal in the seventeenth century. The Dutch East India Company, organized in 1602, was a highly successful venture during its first century. In fact, "for nearly two hundred years it declared dividends ranging from 12½ per cent to 20, 40, or even 50 per cent; the average dividend from 1602 to 1796 was over 18 per cent." [11] The earnings of the English East India Company were even more remarkable. If the figures of W. R. Scott, in his great work on joint-stock companies,[12] are correct, some of the early voyages yielded profits of 195, 221, 311, 318, and 334 per cent—figures that remind us of the early profits of the Ford Motor Company; and during the entire seventeenth century dividends averaged approximately 100 per cent.

Although the joint-stock company antedates the English and Dutch East India Companies, the high dividends paid by those two concerns were an important factor in the development and diffusion of corporate organization. According to Max Weber, "It was these great successful companies which made the device of share capital generally known and popular; from them it was taken over by all the continental states of Europe." [13] Since most of the stock in the English and

[9] Clive Day, *History of Commerce* (New York, 1926), p. 184.

[10] Archivo General de Indias, *Contaduría,* 3–1–1/15.

[11] Clive Day, *op. cit.,* p. 196; *The Dutch in Java* (New York, 1904), p. 71.

[12] *The Constitution and Finance of English, Scottish and Irish Joint-Stock Companies to 1720,* II (Cambridge, 1910), 123–28, 177–78.

[13] *General Economic History,* English trans. Frank H. Knight (New York, 1927), p. 282.

Dutch East India Companies was held in large blocks, the lion's share of the high profits went to recipients of large incomes. Even in the present century individual savings come largely from high incomes;[14] and in the seventeenth century, when the incomes of most workers provided little more than bare subsistence, this tendency must have been much stronger than now. The availability of corporate securities doubtless increased the proportion of savings invested in productive enterprise and tended to promote efficiency through the economies of scale attainable under joint-stock organization. Trade with the Far East in the volume made possible by the great influx of American treasure to pay for spices and other Oriental luxuries and at the same time to support domestic price levels was an important factor in economic development and in the rise of modern capitalism.

IV

An important role in economic development and in the rise of modern capitalism in the sixteenth and seventeenth centuries was also played by an unprecedented and extremely favorable change in the ratio of prices to wages. Though the price and wage series compiled for England by J. E. T. Rogers[15] and elaborated by Georg Wiebe[16] leave much to be desired in both range and accuracy, I see no reason to fear that, as my learned colleague John U. Nef has contended,[17] there

[14] Cf. A. B. Wolfe, "Savers' Surplus and the Interest Rate," *Quarterly Journal of Economics*, XXXV (1920–21), 10–16; David Friday, "Wealth, Income, and Savings," *Annals of the American Academy of Political and Social Science*, LXXXVII (1920), 42; National Resources Committee, *Consumer Expenditures in the United States* (Washington, 1939), pp. 53–55.

[15] *A History of Agriculture and Prices in England* (Oxford, 1882–87), III–VI.

[16] *Zur Geschichte der Preisrevolution des XVI und XVII Jahrhunderts* (Leipzig, 1895), pp. 374–77.

[17] In a very stimulating and scholarly article ("Prices and Industrial Capitalism in France and England, 1540–1640," *Economic History Review*, VII [1936–37], 155 ff.). On the basis of Knoop and Jones's suggestion that supplements in kind of money wages increased with the cost of living in the sixteenth century ("Masons' Wages in Mediaeval England," *Economic History Supplement* to the *Economic Journal*, II [1930–33], 488) Nef argues that Wiebe's figures underestimate the rise in wages. But, surprisingly, the evidence adduced by Knoop and Jones consists of a few payments on only one project in 1561–69 and only one other project in 1510–13, without any indication of what was paid before these dates in either case; while they list one case in which wages were supplemented in kind in 1292. On the strength of this, they tell us that "we think it quite conceivable, however, that in the sixteenth century the practice of boarding the workers and paying them only a reduced money wage was much more commonly adopted" than in the Middle Ages. That payments in kind increased during a period in which the range of the money economy was growing rapidly and the course of money wages indicates that employers had an enormous advantage in wage bargaining is certainly not plausible. In the manuscript records of wage payments with which I have worked there is

is a wide margin of error in the long-term disparity that they show between prices and wages in the sixteenth and seventeenth centuries. In England and also in France, if we can rely upon the average prices for twenty-five-year periods compiled by Vicomte d'Avenel [18] and elaborated by Wiebe,[19] which are unfortunately the best series available for comparing French prices and wages, prices in terms of fine silver rose roughly 150 per cent in the sixteenth century while wages in both countries were rising only about 25 per cent. Again if the crude average data for France are accurate, most of this gain of prices over wages was maintained during the seventeenth century. In England prices continued to rise and wages tended to keep pace until the middle of the seventeenth century, when prices were approximately 250 per cent and wages about 75 per cent higher than in 1500. English wages continued to rise in the second half of the seventeenth century while the price trend was horizontal, but by the end of the century wages were only 150 per cent above the 1500 level, while prices remained about 250 per cent above it.[20]

Statistics on the course of rents during the sixteenth and seventeenth centuries are lacking, but there is strong evidence that in England rents lagged considerably behind prices in the sixteenth century. In his admirable study of the *Agrarian Problem in the Sixteenth Century,*[21] Tawney tells us that "landlords, who were faced with swiftly rising prices on the one hand and fixed freehold and copyhold rents on the other, were in a cleft stick"; and the Knight in the *Discourse on the Common Weal of this Realm of England* (1549) repeatedly complained that the lag of rents behind prices had impoverished landlords. On acquiring new land or upon the expiration of leases, the Knight raised rents, but he did not expect a third of his land to be leased again during his lifetime, nor perhaps during the lives of his sons.[22] Although satisfactory data are lacking, presumably the necessarily long terms of

an impressive decline of payments in kind during the sixteenth and seventeenth centuries, and Wiebe found so "much evidence" of this tendency "that one can speak of it as a general rule" (*op. cit.,* pp. 141–42). It is interesting that the lag of money wages behind food prices in 1501–1660 in the table and chart shown by Knoop and Jones (*op. cit.,* pp. 485–86) agrees very closely indeed with the lag shown by Wiebe's computation from Rogers' price and wage series.

18 *Histoire économique de la propriété, des salaires, des denrées, et de tous les prix en général* (Paris, 1894–1926), I–VII.

19 *Op. cit.,* pp. 378–79.

20 Earl J. Hamilton, "American Treasure and the Rise of Capitalism, 1500–1700," *Economica,* IX (1929), 350–53.

21 (London, 1912), p. 309.

22 Ed. Lamond (Cambridge, Mass., 1893), pp. 19, 38–39, 41, 81, 86.

urban land leases in themselves prevented rents of urban land from rising as fast as prices during the Price Revolution.

Even in the countries best equipped with capital at present, direct and indirect wage payments (that is, wages and payments for labor embodied in materials and equipment purchased) are twice as great as all other costs of producing the average product. It is certainly reasonable to assume that wages did not represent a much smaller percentage of costs of production in the sixteenth and seventeenth centuries. With prices rising steadily and wages lagging far behind, profits must have reached high levels in England and perhaps in France during the sixteenth century, continued at about the peak during the next four or five decades, and remained high in England and, again perhaps, in France, with a great, though declining, gap between prices and wages, until the close of the seventeenth century.

A purely hypothetical example may clarify the connection between prices, wages, and profits. Assume that out of every £100,000 worth of goods produced by a typical capitalist in England at the beginning of the sixteenth century, £40,000 went for wages, £40,000 for raw and partly fabricated materials and for equipment, and £10,000 for rent, leaving £10,000 for profits. The profits on the turnover amounted to 11 per cent. Since prices rose about 150 per cent, the goods should have sold for £250,000 at the end of the century. On the average, wages would not have amounted to more than £50,000; and, on the unreal assumptions that rents rose as much as prices and that no net profits were earned on materials and equipment, these two items should have cost only £125,000. Profits should have amounted to £75,000, or 43 per cent on the turnover. Other things equal, the lag of wages behind prices should have almost quadrupled profits. Whether profits did rise in any such ratio, it would be extremely interesting to know. One thing that did not remain equal was productive efficiency. Great advances in technology, particularly in England between 1540 and 1640, which Professor Nef has characterized as an early Industrial Revolution,[23] must have forced the efficiency rate of wages below the nominal rate and correspondingly raised profit margins even more. Furthermore, if we make the realistic assumption that outlays for equipment and materials yielded normal profits, thus giving to the individual capitalist on each turnover his full share of the gain for capitalists as a class from the lag of wages (presumably representing at least 60 per cent

23 "A Comparison of Industrial Growth in France and England from 1540 to 1640," *Journal of Political Economy*, XLIV (1936), 289 ff.

of total costs) behind rising prices, we find that the rate of profits should have risen more than in our hypothetical example.

Swollen profits resulting from the lag of wages behind prices in England and probably in France during the Price Revolution concentrated income in fewer hands and thus stimulated saving. This was especially important at a time when habits, institutions, and public attitudes favored dissipation of large incomes on luxuries or their investment in conventional types of real estate. Since there had been little experience in capitalistic ventures, the basis for calculating risks was slender, and owing to uncertainty there was a strong disinclination to take them. Hence the inducement to risk savings in productive enterprise afforded by the high rate of profits proved highly advantageous. Moreover, the continuous rise in prices penalized delay in the investment of savings. Thus capital became available for the exploitation of costly technological innovations in industry, agriculture, and mining; provision of housing for a growing population; colonization; growth of the merchant marine; and every other kind of economic development. Employment of labor with the expectation of a pecuniary profit—that is, capitalism—flourished. Feudalism in agriculture and the guild system in industry and commerce lost ground. Both the rate of progress and the rise of capitalism seem to have been more rapid in England than in France. The costly wars that France waged against Charles V and Philip II, the fratricidal conflict between Huguenot and Catholic, and the civil disturbances during the minorities of Louis XIII and XIV account for much of the difference. At the beginning of the sixteenth century the French economy stood at a much higher level than the English. Therefore, some of the progress in England consisted in copying from her neighbor. Naturally, this tended to make the advance more rapid in England, but easier and less significant. Furthermore, the price-wage stimulus may have been less in France; for the best French price and wage series are too crude and fragmentary to be taken at face value.[24] I cannot agree with Professor Nef that greater economic development in England than in France resulted largely from technological change stimulated by a much greater increase in prices of wood and timber in England than of prices in general, without a

[24] Since the French archives, particularly the Archives de l'Assistance Publique at Paris and the Archives Départementales des Bouches-du-Rhône and the Archives Communales at Marseille, are bulging with account books and documents containing excellent price and wage material extending far back into the Middle Ages and, since intellectual curiosity and culture have flourished in France, it is strange that no comprehensive and trustworthy price and wage data for France during the Price Revolution are available.

similar differential in France.[25] For the available quotations for wood and timber in each country are too meager and the measures in terms of which they are quoted entirely too uncertain for one to know how wood or timber prices behaved in either country. The price of charcoal, the only wood or timber product quoted in a strictly uniform measure, did not rise more than the average of other commodities in England.[26] Furthermore, as Professor Nef has shown,[27] shipbuilding—which would not have been stimulated by disproportionately high timber prices—was one of the major industries in which England's advantage over France was most pronounced.

In Spain, where the Price Revolution was most violent, wages almost kept pace with prices until about 1570 and forged ahead after this date, without any compensating gain in efficiency. The leading industrial cities of Castile grew rapidly in the sixteenth century, but much less material progress was achieved than in England or France; and decadence began near the end of the sixteenth century, shortly after wages had moved ahead of prices.[28] At no time was there a significant development along capitalistic lines. In Florence wages did not lag far behind prices,[29] and the great center of medieval art, industry, science, and finance lost her economic leadership. Although the comparative

25 "Prices and Industrial Capitalism," 155 ff.

26 John U. Nef, an extraordinarily competent scholar with qualitative data, based a thesis concerning the rise of industrial capitalism upon fragmentary prices of such heterogeneous articles as timber, firewood, logs, and brush, quoted in such variable measures as loads and bundles, compiled for France by D'Avenel, Raveau, and Hauser and his assistants under the Committee on Price History and for England by Sir William Beveridge and his assistants. In Professor Hauser's *Recherches et documents sur l'histoire des prix en France de 1500 à 1800* (Paris, 1936) and Sir William Beveridge's *Prices and Wages in England from the Twelfth to the Nineteenth Century* (London, 1939), the price histories of France and England published the most recently and produced under the most favorable conditions, the quotations for firewood begin after 1550; and I find no clear evidence that prior to 1650 the prices of wood rose faster, either absolutely or relatively to other prices, in England than in France. As Professor Nef has recognized, the advances of charcoal prices in England did not exceed those of commodities in general. Charcoal is the only wood product in Sir William Beveridge's series that is both homogeneous and quoted in terms of an inherently reliable measure.

It is significant, and often overlooked, that Professor Nef accepts my thesis (set forth the first time in "American Treasure and the Rise of Modern Capitalism, 1500–1700," *Economica* IX [1929], 338–57) that, as he puts it, "by raising prices, the inflow of treasure from America helped to keep down the costs of the labor and the land needed for mining and manufacturing, and thus encouraged the investment of capital in large-scale enterprise."—"Prices and Industrial Capitalism," 183–84.

27 "A Comparison of Industrial Growth in France and England from 1540 to 1640," *Journal of Political Economy,* XLIV (1936), 307 ff.

28 Earl J. Hamilton, "The Decline of Spain," *Economic History Review,* VIII (1937–38), 168 ff.

29 Giuseppe Parenti, *Prime richerche sulla Rivoluzione dei Prezzi in Firenze* (Florence, 1939), pp. 144–56, 233; Amintore Fanfani, *Indagini sulla Rivoluzione dei Prezzi* (Milan, 1940), p. 146.

price-wage data presented graphically by Dr. M. J. Elsas for Augsburg, Würzburg, and Munich [30] are limited to the prices of one or two grains and the wages of one or two grades of labor, it seems that in all three of these cities, wages lagged behind prices about as much as in England from the beginning of the sixteenth century until some time during the Thirty Years' War. During the Thirty Years' War wages rose and prices fell sharply,[31] and the price-wage ratio remained distinctly unfavorable to capitalistic enterprise for a generation or two. When wages were lagging behind rising prices, the Fuggers of Augsburg were doubtless better known and probably more powerful than any other capitalists in Europe. Southern Germany was a hotbed of capitalism and was in the vanguard of technological progress, particularly in mining and in textiles. The Thirty Years' War ushered in a long period of retrogression, and the rising economic individualism gave way to renascent feudalism and state control. The sharp rise in the ratio of wages to prices may have been the mechanism through which decimation of the population and destruction of property in Germany during the Thirty Years' War obstructed economic progress.

It would be manifestly absurd to contend that the great lag of wages behind prices in England, southern Germany, and perhaps France and other areas during the Price Revolution of the sixteenth and seventeenth centuries was solely responsible for the rise of modern capitalism. The formation of national states undoubtedly played an important role. So did progress in pure and applied science and a host of other factors. I think that any possible influence of Protestantism has been greatly exaggerated by Max Weber and his numerous disciples; it seems that if we balance the positive and negative influence of Protestantism, it was not only unfavorable, but hardly less so than Catholicism. But I have no serious misgivings about any other commonly accepted factor. It is difficult, however, to see how anything else could have been more important than the great lag of wages behind prices in certain economically advanced countries during the Price Revolution. Capitalism required *capital,* and it would not be easy to imagine a more powerful instrument for providing it than forced saving through a highly favorable price-wage ratio. The high rates of profit when prices were rising and wages, the chief cost, were lagging gave a strong inducement to

[30] *Umriss einer Geschichte der Preise und Löhne in Deutschland,* I (Leiden, 1936), 777, 784, 790.

[31] Cf. Georg Wiebe, *op. cit.,* p. 115.

invest savings in productive enterprise. Rising prices penalized delay in investment and by lowering the effective rate of interest encouraged borrowing for investment in anticipation of earnings. In short, rising prices and lagging wages provided capital and gave strong incentives to use it capitalistically. Other things anywhere near equal, capitalism could hardly have failed to flourish.

V

During the first third of the seventeenth century the trend of prices was moderately downward, and wages moved horizontally, thus restoring to workers some of the loss they had sustained in the sixteenth century.[32] A marked increase in the output of silver in Mexico and, though much less important, of gold in Brazil[33] arrested the secular decline of prices about 1735 and, with a little assistance from the Seven Years' War, forced prices upward about 35 per cent in London and 65 per cent in New Castile and Holland in 1750–1790.[34] In all three areas prices had approximately doubled by 1791–1800, under the impact of silver inflation and the Napoleonic Wars. While prices were rising 35 per cent in London, by far the largest consuming center in England and the focal point for economic and political relations, the wages of artisans and unskilled labor in the building trades, which seem to have been representative for most grades of labor,[35] advanced only about 15 per cent; and while prices were doubling, wages rose a little less than one fifth. Appreciation of inventories and depreciation of debts raised normal profits, but these gains were small in comparison with those from the lag of wages behind prices. If we make the same assumptions concerning wages as in our hypothetical example for the sixteenth century,[36] we find that profits should have risen almost

[32] A part of this loss had already been regained in the second half of the seventeenth century, when prices moved horizontally and wages rose substantially.

[33] Adolf Soetbeer, *Edelmetall-Produktion und Werthverhältniss zwischen Gold und Silber seit der Entdeckung Amerika's bis zur Gegenwart* (Gotha, 1879), pp. 55, 92.

[34] N. W. Posthumus, *Nederlandsche Prijsgeschiedenis,* I (Leiden, 1943), cxvii; Earl J. Hamilton, "Profit Inflation and the Industrial Revolution," *Quarterly Journal of Economics,* LVI (1941–42), 257–70.

[35] Cf. A. L. Bowley, *Wages in the United Kingdom in the Nineteenth Century* (Cambridge, 1900), p. 63; Elizabeth Waterman Gilboy, *Wages in Eighteenth Century England* (Cambridge, Mass., 1934), p. 19.

[36] In connection with the assumption that for a particular firm direct labor represented 40 per cent of costs, it is interesting that Professor Bladen found that "in 1798 direct labour cost at Wedgwood's was 40 per cent of the value of Useful Ware, and 67 per cent of the value of Ornamental."—"The Potteries in the Industrial Revolution," *Economic History Supplement* to the *Economic Journal,* I (1926–29), 125. In 1820 Malthus pointed out that "those who

as much in the second half of the eighteenth century as in the earlier period. But the greatest inflation of profits should have come in 1791–1800, and economic development may have been hindered in 1793–1800 by the bitter war with France. For reasons that have been made clear, in the second half of the eighteenth century, savings, investments, and the capital supply in England rose phenomenally.[37]

Not only did Watt, Cort, Crompton, and the other gifted men whose inventions made the eventual triumph of machine technique inevitable perform their great feats in the second half of the eighteenth century, but there was an outburst of mechanical invention by lesser lights. English patents jumped from 82 in 1740–1749 to 92 in 1750–1759, 205 in 1760–1769, 294 in 1770–1779, and 477 in 1780–1789; and these figures tend to underestimate the stream of inventions. After 1760 inventors increasingly accepted bonuses from the government, private industry, or some association for the encouragement of useful arts to waive their patent privileges. Since patents became progressively costlier and more difficult to obtain, there was a concurrent upward trend in the quality of patented devices.

The factors underlying the great surge of mechanical invention were numerous and complex. The increased supply of capital was certainly one of the most important. Few inventors drew support from capitalists during the pioneering stage of their operations. On the other hand, the development of practically all devices and processes to the point of profitable usefulness required heavy outlays and long periods of waiting for uncertain returns. Though the new machinery seems now to have been intolerably crude, almost without exception substantial sums were required in advance for its purchase, installation, and operation during long initial periods of loss. The lag of wages behind rising prices provided funds for the exploitation of inventions, without which their number and importance would have been much less. If inventions had not been utilized because of insufficient capital, the effect upon inventors would have been the same as failure to secure publication upon authors. The lag of wages behind rising prices also widened the margin of earnings that could be plowed back in developing inventions and in building the factory system. That forced saving through the lag of wages behind rising prices played a vital role in the Industrial

live upon the wages of labour, unproductive as well as productive, receive and expend much the greatest part of the annual produce. . . ."—*Principles of Political Economy* (London, 1820), p. 423.

[37] According to John Lord, in 1740–1800 British capital, exclusive of land, more than quintupled.—*Capital and Steam-Power* (London, 1923), pp. 182–84.

Revolution in England during the second half of the eighteenth century, its critical incipient stage, can hardly be questioned. If prices and wages had not behaved as they did, or in a similar fashion, it is doubtful that industrial progress would have been rapid, pervasive, or persistent enough to appear *revolutionary* to succeeding generations.

In France from 1740 to the outbreak of the French Revolution wages lagged behind prices even more than in England during this period. The price series compiled by Professor C. E. Labrousse show a rise of 64 per cent from 1726–1741 to 1784–1789, and his wage series, a rise of only 22 per cent.[38] Germain Martin, who studied French industry during the reign of Louis XV (1740–1774) with extraordinary care, reminds us that "the academies of science furnished such inventors as Réaumur, Hellot, Vaucanson, who perfected the arts of dyeing and weaving." Complex machines came into use, and "especially from 1749 to 1770 France witnessed the emergence in different cities of the factories which have been the elder sisters of our great factories at the end of the nineteenth century. Le Creusot, Saint-Chamond, Firminy, Saint-Etienne, Baccarat, the iron works of the East, the industries of Marseille date from this period . . ."[39] From 1715 to 1789 the foreign trade of France "increased fourfold, and in this direction the development of France was even more rapid than that of England."[40] It is interesting to speculate on how far the industrial progress of France might have gone if she had been spared the violence and unbridled inflation of the French Revolution and exhaustion by the Napoleonic Wars.

From 1750 to 1790 prices in New Castile, the heart of Spain, rose slightly more than in France from 1726–1741 to 1784–1789, and wages rose a little less.[41] In the first half of the eighteenth century Spain arrested the utter decadence into which she had fallen in the seventeenth century, and in the second half of the eighteenth she achieved substantial progress. Old industries revived; many new ones were established, and some of them gained firm footholds. According to Professor André Mounier, cotton manufactures began at Barcelona in 1746; and "it is to the cotton industry that one must attribute the modern pros-

[38] *Esquisse du mouvement des prix et des revenus en France au XVIII[e] siècle* (Paris, 1933), II, 362, 492.

[39] *La grande industrie en France sous le règne de Louis XV* (Paris, 1900), pp. 7–8.

[40] Henri Sée, "The Economic and Social Origins of the French Revolution," *Economic History Review*, III (1931–32), 3.

[41] Earl J. Hamilton, *War and Prices in Spain, 1651–1800* (Cambridge, Mass., 1947), pp. 208 ff.

perity of Catalonia, which dates from the middle of the eighteenth century."[42] Near the end of the century such keen and well-informed observers as J. F. Bourgoing[43] and Joseph Townsend[44] said that the linen, silk, woolen, hemp, cotton, potash, glass, and cutlery industries had advanced remarkably in recent decades and that some of them could compete with those of any other country in Europe. Townsend, who was familiar with English technology, doubted that a traveler could find more mechanical contrivances or modes of expediting work "which are of late invention, or at least new to him," in any country than in Spain.[45]

Yet no matter what travelers or scholars may tell us, the hot climate, scarcity of fuel, low rainfall, mountainous terrain, infertile soil, and unfavorable institutions of Spain prevented progress rivaling that of England. Furthermore, owing to the incompetent rule under Charles IV (1788–1808), Napoleonic invasion, struggle for liberation, loss of the principal American colonies, and internal strife, Spanish economic development did not continue into the nineteenth century. But Spain did develop rapidly in the second half of the eighteenth century, particularly under Charles III (1756–1788) and his able ministers—notably Campomanes, Jovellanos, and Floridablanca. The highly favorable behavior of prices and wages also played a vital role. In fact, some of the greatness that we now see in Charles III and his leading ministers may rest upon this fortuitous foundation.

It would be interesting to know whether the Marquis of Pombal, regarded by many cultured admirers as the greatest builder of all the statesmen Portugal has ever had, was not similarly favored. Scant data provided by Dr. Elsas[46] suggest that this may have been true of Frederick the Great, Gustav Schmoller's model mercantilist ruler.

VI

The nature and the magnitude of the sacrifice imposed on workers by rising prices and lagging wages are difficult problems. The index numbers of commodity prices that I have used do not accurately meas-

[42] *Les Faits et la doctrine économiques en Espagne sous Philippe V: Gerónimo de Uztáriz, 1670–1732* (Bordeaux, 1919), pp. 122–23.

[43] *Tableu de l'Espagne moderne* (3d ed.; Paris, 1803), I, 108–12, 209–14, 323–24; III, 126, 155–56, 216–17, 230–37, 339–41.

[44] *A Journey through Spain in the Years 1786 and 1787* (3d ed.; Dublin, 1792), I, 90–91, 153, 326; II, 239–40, 323–24.

[45] *Ibid.*, I, 93.

[46] *Umriss einer Geschichte*, I, 777, 784, 790.

ure changes in the cost of living for the working class. A major defect of the price indices for this purpose is that the cost of housing, which, owing to long contracts and customary rights of tenants, probably rose a great deal less than commodities in general, is not included. Neither is the cost of labor, or services, which working-class families necessarily consumed. No allowance is made for shifts by consumers to commodities that became relatively cheap because of improvements that lowered costs or for the fact that new commodities became available. The wage indices do not include vegetables, poultry, dairy and animal products, or textiles that workers and their families were able to produce for themselves; and in some cases these items were significant.[47] Hence by overestimating the rise in the cost of living and underestimating the total means of living, the price-wage ratios that I think throw strong light on profit margins exaggerate the losses of real income by fully employed workers. But it is highly significant that the most careful study of real wages in England before 1800 that is available shows that, with labor representing one fifth of living costs and thus reducing the impact of commodity prices, the decennial average of real wages of fully employed artisans at London fell more than 18 per cent from 1741–1750 to 1781–1790 and more than 25 per cent from 1741–1750 to 1791–1800.[48] Daily rates of real wages did not fall less than this in New Castile during the same period or in France from 1740 to 1789; and no reasonable allowance for overestimation of living costs or underestimation of total wages can lead one to doubt that the daily rate of real wages fell substantially in England or France in the sixteenth century.

But there were other factors that softened the plight of working-class families. Most of the people in all countries were engaged in agriculture, and few of them depended upon money wages. Even in urban communities many workers were self-employed and thus unaffected by the pressure of prices on wages.[49] Additional members of workers' families found employment as labor became relatively cheap, and the number of days worked by employed laborers rose. Therefore, it is

[47] Cf. Douglas Knoop and G. P. Jones, "Masons' Wages in Mediaeval England," pp. 490 ff.

[48] Rufus Tucker, "Real Wages of Artisans in London, 1729–1935," *Journal of the American Statistical Association*, XXXI (1936), 76–79.

[49] Keen observer as he was, Adam Smith was seldom farther wrong than when he said that "in every part of Europe, twenty workmen serve under a master for one that is independent; and the wages of labour are every where understood to be, what they usually are, when the labourer is one person, and the owner of the stock which employs him another."—*Wealth of Nations*, ed. Cannan (London, 1904), I, 68.

possible that the annual consumption of goods and services by working-class families fell very little. But leisure was certainly sacrificed. If mercantilist writers and statesmen who insisted that idleness resulted in strong drink and weak living were right, the loss of leisure may not seem to us to have been a great evil. But we know from the long and determined resistance of workers to factory discipline and to the regular hours essential in group employment that loss of leisure was a genuine hardship.

VII

Prices in England continued to rise from 1800 to the close of the Napoleonic Wars in 1815, but wages no longer lagged. From 1815 to the middle of the century prices in England and the United States fell approximately 50 per cent as a result of (1) postwar readjustment on an unexampled scale, (2) a decline in the output of precious metals in Latin America by one half because of the Wars for Independence and of political instability under the new governments,[50] and (3) declining costs of production resulting from the introduction of new technology, revolutionary changes in transportation, and the exploitation of vast new areas with rich natural resources. During the same period wages declined very little in England and rose slightly in the United States; but the new technology, transport facilities, and natural resources kept the efficiency rate of wages more nearly in line with prices. In so far as the decline in prices reflected a drop in costs, the chief harm was to debtors; but most debts were owed by businessmen, the dynamic element in the economy. To the extent that prices fell as a result of the decreased money supply, profits, saving, investment, and economic development were curbed. Real wages of fully employed workers rose, but this was largely offset by chronic and cyclical unemployment. No one will deny that economic progress was great in England and the United States in 1815–1850; but might it not have been even greater if the low output of precious metals had not depressed the price level?

During the long secular price decline after Waterloo, Sismondi,

[50] "And were the Spanish American States to be redeemed from anarchy by again falling into the possession of any European government, it is certain, as M. Chevalier has remarked, that they would throw largely increased supplies of silver upon the market."—W. Stanley Jevons, *A Serious Fall in the Value of Gold Ascertained* (London, 1863), p. 46.

Fourier, Saint-Simon, Proudhon, and Blanc wrote their greatest works; and Utopian socialists won their most numerous and most respectable disciples. This period was also marked by extremely severe business depressions. The ones that began in 1818 and 1837 in the United States and in 1837 in England, for example, were among the longest and worst either country has ever experienced. Social unrest culminated in revolts against the government in 1848 in every country in Europe except England, Sweden, and Russia; and the "bad years" following the Napoleonic Wars, the Chartist movement, and the Hungry Forties remind us that all was not *merry* in England.[51]

VIII

In 1850–1870, when gold from California and Australia was raising prices steadily, England and France, particularly the latter, developed with extraordinary rapidity. Furthermore, the only severe business disturbance was the crisis of 1857; and it was over quickly everywhere. Wages rose more than prices in England and France; but in all probability the efficiency rate of wages dropped, thus intensifying the economic development. Industrial capacity, acreage in farms, and transport facilities increased notably in the North (despite heavy mobilization) during the Civil War in the United States, when prices more than doubled and wages lagged far behind.

History came as near to repeating itself in 1873–1897, by duplicating what had taken place in 1815–1850, as it ever does. Prices in the United States and England declined by more than one third, or at about the same rate as in the earlier and longer period. Except for a slight dip for about a decade beginning in the mid-seventies, wages rose slowly in England and the United States. The decline in prices was partly because of a decrease in the money supply resulting from general demonetization of silver after 1872 along with the low annual cumulative percentage increase in the stock of monetary gold and partly because of a decrease in costs resulting from remarkable improvements in technology and transportation and from the exploitation of rich new natural resources. To the extent that prices fell because of a deficient money supply, profits were restricted and business depressed. In most countries of the Western world, business was very bad for considerably more than

[51] It was in his *Nigger Question*, published in 1849, that Carlyle allowed "no advantage to the English labourer over the West Indian slave."

half this time, and the depression that began in 1873 was one of the most severe the world has ever known.[52] Henry George, Edward Bellamy, Henry Demarest Lloyd, and Karl Marx were pouring out protest literature; and some of their works were best sellers. The United States had the Granger Movement, Populism, and Coxey's Army. England had her famous Royal Commission on the Depression of Trade and Industry, before which Alfred Marshall was proud of having testified; and in English economic history the Great Depression means the quarter century, 1873–1897.

The gold discoveries in the Yukon and Witwatersrand at the end of the nineteenth century brought consequences in the next twenty years too similar to those of the Californian and Australian gold rushes in 1850–1870 for it to be worth while to discuss them. I am sure that your knowledge of price behavior since 1917 is too complete and your opinions concerning it too strong for it to be necessary or prudent to review this period.

IX

The price inflation that I think was beneficial in certain times and places was at the creeping rate of less than 2 per cent a year cumulatively in the most extreme case and less than 1 per cent in all other cases—or about one fifth to one tenth the rate that the United States experienced in the first year after the outbreak of war in Korea in 1950. Vastly different have been the results of hyperinflation. Runaway inflation of the type that we suffered under the Continental currency, France under the assignats, or Germany under the paper mark after the First World War has had the great advantage of eliminating voluntary unemployment in the early stages,[53] the possible advantage of weakening vested interests and softening economic rigidities, and the very doubtful advantage of reducing or wiping out troublesome debts. These results have been overwhelmingly counterbalanced by crushing inequities in the distribution of wealth and income, abandonment of the use of money, reversion to a primitive barter economy, and disruption of economic life during the transition to a new currency.

The deflation that we have considered was also creeping; in no case

[52] Cf. I. O. Scott, Jr., "A Comparison of Production during the Depressions of 1873 and 1929," *American Economic Review*, XLII (1952), 569 ff.

[53] Cf. Frank D. Graham, *Exchange, Prices, and Production in Hyper-Inflation: Germany, 1920–23* (Princeton, 1930), pp. 279–81.

did it average as much as 2 per cent a year. Although this slow deflation may have enabled workers to regain a part of what they had lost in real income or in leisure during preceding periods of inflation, the penalties were unemployment, crises, and social unrest. Much greater disasters have resulted from cataclysmic short-term drops in the price level. For example, when drastic monetary deflation forced prices downward 44 per cent in Andalusia, 46 per cent in New Castile, and 48 per cent in Old Castile-Leon in 1680–1682, every stratum of economic life was severely shocked; violent disorders were widespread; peasants resorted to barter; merchants refused to supply the royal household with table provisions on credit; and with war imminent, soldiers were poorly fed.[54] The collapse of commodity prices by 34 per cent at Bordeaux, 40 per cent at Paris, and 60 per cent at Mâcon in 1714–1716, following currency deflation and the War of the Spanish Succession, brought bank failures, commercial bankruptcies, and unemployment such as France had never seen.[55] One of the worst results of the epidemic of bank failures in the United States in every major depression from 1818 through 1932 was the accentuation of price declines through the destruction of a considerable portion of our money supply.

X

Since the chief concern of economic historians is to provide knowledge which will help increase the real incomes and the leisure enjoyed by the masses, we must ask ourselves whether price-wage ratios that forced four generations of workers to forgo leisure which was precious to them or portions of their low real incomes for the immediate benefit of the well to do can be regarded as instruments of progress. While considering this question, we must recognize that the creation and utilization of new modes of production required large amounts of capital, and the most advanced areas in the world obviously could not obtain this capital through loans, grants, or equity investments from abroad. The capital could be secured only through savings at home, and the quantity required was so large that a substantial portion had to be drawn directly or indirectly from the working class. We know that workers would not have made the necessary sacrifice voluntarily.

[54] Earl J. Hamilton, *War and Prices*, pp. 126–29.

[55] Earl J. Hamilton, "Prices and Wages at Paris under John Law's System," *Quarterly Journal of Economics*, LI (1936–37), 50–55; "Prices and Wages in Southern France under John Law's System," *Economic History Supplement* to the *Economic Journal*, III (1934–37), 443–45.

Could any way have been found to coerce them that would have been more palatable or less injurious than the lag of wages behind rising prices? What was saved had to be invested if stagnation was to be avoided, much less progress achieved. Could a better method of inducing the necessary investment have been devised than the high rate of profits resulting from a favorable price-wage ratio?

Most scholars and statesmen who are attempting to transplant the technology of advanced countries in underdeveloped areas, a much simpler problem than the *creation* and adoption of new methods of production, agree that domestic saving must supply a large part of the developmental capital and that on this account, for many years to come, consumption, even though very low, must not be permitted to rise to the full extent made possible by improved technology, management, and organization. Economic and social planners for underdeveloped areas are also deeply concerned over restraining lavish consumption by the ruling classes, preventing savings from going largely into existing real estate, and channeling them into equity investments in productive enterprise. It will be interesting to see whether economic planners for underdeveloped areas can hit upon a more effective device for either restraining consumption or inducing investment than rising prices and lagging wages. The most frequently mentioned method for capital formation in underdeveloped areas is for the government to absorb increases in output through taxation and to invest the revenue in productive enterprise. This method has the distinct advantage of enabling the workers to share in the ownership of the fruits of their sacrifice. But whether governments in underdeveloped areas will have the courage or even the power to claim the increase in production through taxes is questionable. Severe inflation as a result of public investment not covered by taxes is much more likely; and despite strong efforts by labor unions and the government to force wages up, they may lag. Hence it will be interesting to see whether any backward area develops industrially to a significant degree in the next quarter or half century without the stimulus of rising prices and lagging wages. We must ask ourselves too whether, if attainable, public ownership of enlarged means of production in areas with heterogeneous populations, as there are in practically all important underdeveloped areas, may not be potentially dangerous to minority groups.

Anyone willing to be fair to Soviet Russia, not an easy task in view of her unwillingness to be fair to anyone else, must recognize that disregard for proletarian interests is not one of her weaknesses. The

sacrifices imposed on workers by the price-wage ratios of the early Industrial Revolution of the sixteenth and seventeenth centuries or of the Industrial Revolution of the second half of the eighteenth century were probably small in comparison with the sacrifices now being imposed on Russian workers and, particularly, on peasants by direct and arbitrary action designed to promote the long-run interests of the working class. The plans of socialist governments in Europe have generally provided for higher ratios of savings to national income in the years of bitter poverty following the Second World War than in the most prosperous years before the war.

It has not been unusual in war or peace for an individual or group to make sacrifices for others, including future generations; and the sacrifices of real income and leisure by workers that I have singled out as dynamic factors in economic development, though spread over long periods, developed too slowly to be crushing in any. Think of the rich rewards in income and leisure they have borne succeeding generations.

EARL J. HAMILTON, *The University of Chicago*

ORIGINS OF MODERN BUSINESS ENTERPRISE

Medieval Italy[1]

THE sort of document which explicitly formulates policy is, in any field of history, rather hard to come by. That is especially true when we search for formulations of business policy and especially for medieval formulations of medieval business policy.

Not that the latter are entirely lacking. We have the sort of advice reflected in the "King's Mirror." We have, insofar as they apply to business as such, theological and legal comments on business policies. We have, in the words of treaties and statutes, what amounts sometimes to statements of policies condemned, policies approved, policies projected, or policies which failed.

But in the over-all, "policy" as outlined in writings like the "King's Mirror" is related to real policy much as the similar manuals for the education of princes were related to the real policies of such as Philip the Fair. Statutes and other governmental documents, at least in their preambles where policy is expressed, do not, as we all know, always reveal policy nor were they intended to. Theoretical writings, especially those coming down from ethics through morals to everyday affairs, can influence policy deeply. However they do not necessarily nor even commonly describe policy, in any generation.

It would appear best, on the whole, to search for policy through the evidences we have of practices. Then, perhaps, we can come back to the question of policy by way of conclusion.

[1] In the United States are at least three students who should have been charged with this paper: Raymond de Roover, Frederic C. Lane, and Robert S. Lopez. In Italy is Professor Armando Sapori. Finally, in most essentials, it was long ago written by the master of us all, Gino Luzzatto, in his "Piccoli e grandi mercanti nelle città italiane del Rinascimento" in the commemorative volume for Professor Giuseppe Prato (Turin, 1930). The excuse for this paper is that none of the others was available at the moment and it was designed to fit into a balanced program of papers to be read at the annual meeting.

Especially complete bibliographies, up to a fairly recent date, are given by A. Sapori, *Studi di storia economica medievale* (enlarged second edition, Florence, 1946), pp. 769–804, and by Gino Luzzatto in publishing his translation of Alfred Doren's *Wirtschaftsgeschichte Italiens im Mittelalter,* printed as *Storia economica dell'Italia nel Medio Evo,* II, series 1, of *Collana di studi di storia economica* (Padua, 1937), 619–49. The review article of Sapori's *Studi,* written by Robert S. Lopez in *The Journal of Economic History,* VIII, 1 (1948), 63–68, comes close, by itself, to covering the topic here treated. A survey of Italian economic activity before and after 1500 is provided by G. Luzzatto, *Storia economica dell'età moderna e contemporanea,* part I, *L'Età moderna* (2d ed.; Padua, 1938), and in *Collana di studi di storia economica,* I, series 1, chap. ii; bibliographical references, pp. 53–54, 68–69, 84–85, 101–2, 111–12.

I

Pure knowledge of what to do in business is one of the two things needed for business. This comes with training, acquired by serving working businessmen in a junior capacity. This meant fairly intimate contact and demanded of the neophyte eligibility by birth, temperament, and ability for trust and for companionship with his seniors. The best entree was to be born into the senior's family or to be one of that restricted circle of those eligible as sons-in-law.

It was possible to enter this familiar status from further outside but this was more difficult and fairly rare. Sentimental ties could draw junior and senior together; whatever their original rank they might grow close through sharing a sectarian religious allegiance or because they were, say, Englishmen in an Italian city. Junior employment *without* entree could supply some knowledge of business ways but left acquisition of the right over goods, the other of the two prerequisites, very difficult of achievement.

I like the phrase "the right over goods" instead of "capital," "credit," or like terms, as a designation for what a man needed next to get into business, whatever the sort of business or its volume or its social prestige or its tools and processes, or its raw materials or its markets, or its housing. In medieval Italy this meant, both in general and in the particular cases, the considerable control over other person's goods—qualified or limited control for the most part, but control sufficient to give him the opportunity (and the obligation) to manage his relinquishment of control over each item in such a way as most to profit himself. But this starts to edge toward "policy" and even "theory," with which I am emphatically not here concerned.

The acquisition of knowledge was in itself a process which carried with it developing control over goods—the senior's goods and goods delegated by still others to the senior's control. As apprentice or trusted clerk, as traveling agent or junior partner, the returns to the rising young man grew and his scope for independent activity increased.

At some point, unless he was to live out his life as a junior or even as an employee, he reached full stature. This was a step usually connected with the acquisition of control over sufficient cash, building, clothes, tools, and goods. It also involved reaching full status as citizen, acceptance into his chosen group inside the citizenry, and the acquisition of licenses and privileges formal and informal needed in his work.

Mostly these all came close together with assumption of inheritance

and dowry. In a family or business in which one or more elders still maintained active interests in affairs, "arrival" to status inside the business would be recorded in a complex of interlocking arrangements: assumption of inheritance, rearrangements of that inheritance to care for the interest of other heirs, taking over or acquiring a domicile, and—from our point of view the "business aspect," but from theirs only one of the many-sided settlements necessary on the occasion—the statement of "capital" and shares of gain (or loss) in "the business." "The business" was rearranged fairly often, and almost invariably when one or several entered or left it.[2] Absolutely individual, "lone-wolf" businessmen there were, and in some lines they were proportionately numerous, but still they were not the rule.[3]

II

In the management of "the business" there were continuous refinements and even new developments between the late 1100's, when we can begin to get glimpses of going practices, and the 14–15–1600's. Still, in main lines, Italian managerial practices were continuously similar.

The business being in the family and the family in the business, the headquarters of smaller enterprises generally existed under the same roof with the eating and sleeping quarters of all concerned. Large enterprises too were frequently centered in the same complex of palazzi, courtyards, shops, and lofts which served the chief partners as private homes.[4] There was little commuting to work. Even warehousing in large wholesale enterprises was at least partially a matter of putting

[2] The successive rearrangements of firm interests are analyzed by Sapori in *I libri di commercio dei Peruzzi* (Milan, 1934), and in *Studi*, "Storia interna della compagnia mercantile dei Peruzzi," and in the appendix to the same (no. II, pp. 243–84).

[3] Andrea Barbarigo was sole manager of his own affairs but within the circle of protections given by the Venetian state itself. Even within the circle he was not exactly a lone wolf, co-operating with relatives, enjoying a large banker's patronage, and making use of many correspondents.—Frederic C. Lane, *Andrea Barbarigo, Merchant of Venice* ("Johns Hopkins University Studies in Historical and Political Science," Series LXII, No. 1 [Baltimore, 1944]). In business in Genoa, in the late 1100's and early 1200's were few if any operators who were entirely "unattached," as far as I can see. Francesco di Marco Datini da Prato started as an individual, but from his early days on worked to build up around himself a great organization.—E. Bensa, *Francesco di Marco da Prato* (Milan, 1928), and the brief general analysis of Francesco's career and records by Robert Brun, "A Fourteenth Century Merchant of Italy: Francesco Datini of Prato," *Journal of Economic and Business History*, II, 3 (May 1930), 451–66.

[4] The Medici Bank, just as an example, was housed in the palace in Florence.—Raymond de Roover, *The Medici Bank; Its Organization, Management, Operations, and Decline* (New York: New York University Press, 1948), p. 64.

things in the garret or the basement or on the ground floor. Deposits of special goods might be made in lofts or dockside buildings, but even these were only a few minutes' walk from the family sleeping quarters.

The employ of legal counsel and the recording of important agreements between parties great and small, whatever the nature of the affair, was good practice. Much was done orally in backward areas. Transitorily, phases of business transactions could be handled by oral understanding, under the rules of market-place conduct.

Interested parties also secured copies of all documents in which was recorded what could be for them some later advantage. Less often, for the copies cost a fee, the one due to pay or perform also took a copy.

In addition to these registered documents, there were the written records of a private nature—in account books and letters passed inside the business between responsible partners and agents and correspondents.

The keeping of accounts is a practice upon which we are increasingly well informed. Interest has centered upon "bookkeeping" for over a generation and there is now a large general work on the subject which, for my period at least, is most useful—Melis' *Storia della ragioneria.* In one volume we now have drawn together what have hitherto been scattered publications of articles and documents. Much more will soon be added by such tireless workers as Sapori, De Roover, Lane, and the rest. Melis builds largely on what those very scholars had already found, but at least there is now a single general work available.

Broadly speaking, it is clear that by 1200 businessmen in advanced centers were keeping books. It is clear that at least some shopkeepers were doing so. This holds for Italy; we simply do not have sources for other lands for so early a date.

Interest in the history of double-entry bookkeeping is unflagging. Double entry in debit and credit columns or double entry in other mechanical arrangements is now clearly documented for the earliest 1300's and was in use at least a generation before that in Genoa and Florence certainly, and in neighboring centers presumably. Various books for various purposes, with posting and cross references, were customary. Surviving deposits of company papers, which overwhelm the modern researcher by their mass, attest this for the 13–1500's.

Indexing is a matter in which I have myself some interest. The notaries of Genoa, to judge from the remaining cartularies of their entries, worked steadily at improving their books in this respect. By the middle 1200's good notaries numbered their folios and prepared

annually alphabetical indexes (by baptismal names) of principals involved in all the acts they had drawn in a given volume. In the 1300's nearly all notaries seem to have conformed to what had apparently become this professional practice. Within firms, simple accumulation, given some order by filing under broad categories, was common. Temperament rather than "practice" in general, then as now, governed the treatment of accumulated records.

III

Inside the household-headquarters there was not, in even the largest enterprises, what would today be considered a large force of employees. Several of those working for the enterprise were in fact kinsmen or other prospective insiders. One or several trusted wage-paid employees there could be—to handle routine matters of either a white collar or servitor or workingman sort or even in all three capacities as needed. Small enterprises had no permanent employees.

It was possible, however, to add or drop employees of all sorts—notaries, medicos, cooks, pen-pushers, porters, swordsmen, stevedores, masons, coopers, messengers, or casual laborers, as the needs of the business might demand. Some of such employees worked only a few days, others had jobs for life and of the lives of their sons and daughters. In wealthy households and even in the shops of small retailers there was a very good chance that one or several slaves could be found—Russians, Mongols, Rumanians, Greeks, Moors, Sardinians, or African blacks. Individual slaves *could* be employed in business work. They were also part of the merchandise inventory.

When the businessman processed something he could add one or many skilled workingmen to his payroll.[5] Normally these were to be paid cash wages by the day, the week, or at the most, every two weeks, as determined by specific agreement, by guild bylaw or trade custom, or by city regulation or any combination of such factors. Advances, to

[5] Under the enterpriser by whose initiative goods were being processed could be skilled workers directly hired to carry the goods through certain stages of manufacture. Some of the other stages of processing of those very same goods were handled by what we should call subcontractors with their own forces of hired workers, while still other stages of processing were under something like our shop foremen. The best of the pictures of all this is provided by R. de Roover, "A Florentine Firm of Cloth Manufacturers; Management and Organization of a Sixteenth-Century Business," in *Speculum*, XVI, 1 (January 1941), 3–33. Small-town industrial activity is partially revealed by the materials used by A. Fanfani, ***Un Mercante del Trecento*** (Milan, 1935), chap. iii; perhaps also it is touched by the operations described by Fanfani, pp. 78 ff. and 98 ff.

be worked off, were known, and at least later (I have not gone into the matter seriously) there was payment in truck.

Some processes—fulling, dyeing, printing, metal casting—called for the assembly of materials, tools, machinery, goods in process, and specially skilled workmen, with helpers, all under one roof or under the roofs around one courtyard. Mining called for really formidable assemblages of managerial knowledge, liquid capital, processing machinery, transport, and sales mechanisms, at least by the later 1400's.

There were businesses which could be tied in with one another. The wholesale dealer in cloths could form arrangements with one or many tailors. The medico and the pharmacist, the notary and the moneylender, could "co-operate," to put it mildly. Such dealings were normally prohibited; outside of or around the law, they at least had a tendency to come into existence. The drapers and tailors *had* to deal with one another, the tailor normally taking the draper's cloths on credit even where no tie-up of a more subtly profitable nature was intended by either party. Still, there was the opening wedge. A draper as landlord could rent to a tailor. The tailor's son or daughter could enter the draper's menage as an employee.

Many a businessman at the processing level sold across the counter ready-made or to order; and in consumer-goods lines mostly for cash. The moneylender financed such buyers as could not pay cash—except where the retailer crept over the line and began to sell for so much down and so much each week or month, even taking pawns. However, those who primarily bought and sold products, and wanted processing done, at all times, but with variations in intensity according to individuals, times, places, and lines of goods, could get craftsmen to do such processing for them.

How this was done, as a matter of practice, depended on circumstances. Like any other craftsmen's customer, a single merchant could buy an item ready made, or many such items from a whole series of town artisans or village producers showing items at market stalls. Or, also as a customer, he could supply raw materials and place one or many specific orders. One or many big dealers could go further, and monopolize all that one or all craftsmen could produce, putting out the raw materials and picking up the processed goods. Still further, they could bind craftsmen to themselves by advances, leases of quarters, and financing for tools. Last of all, they could make the craftsmen into outright employees. All these methods were practiced. All depended on what line, who, when, where. The craftsmen were nearest to

employees in lines in which any single process was only a step in a multiple-process fabrication of goods for a foreign market.[6]

Some men became specialists in the management of the processing, through one or more stages, of goods for the general market. These men could be independent operators themselves, or they could be backed by large dealers or they could be tied to a large dealer in any one of several ways—as dominated "free" operator, as subordinate partner, or as simple employee foreman. An individual might, at various moments in his career, try all of these arrangements.

IV

The functions of buyer and seller can be separated more easily by a modern thinker than they could be by a medieval practicer. Financing too can be separated by us, in theory, from buying and selling, though in medieval practice it permeated completely both operations.

At the consumers' goods level, at market stall in village or city square, or over the shop counter, customers and sellers were, speaking generally, the same persons. The household of the hawker of old clothes was the fish dealer's customer and so all around and crisscross through the community.

The ends achieved today by advertising, customer promotion, and so on, were achieved effectively enough by concentration of given enterprises in known spots, and of laborers in giving hiring rendezvous or hangouts. A person wanting goods or a given sort of service knew where to get what he wanted; lawyers or money-changers, porters or entertainers, had known rendezvous. Special signs on shops, features of costume, calls and cries, all served to advertise and that even in the sense of stimulating purchases. Advertising in competition with fellows in the same line was not generally approved nor generally necessary, but advertising of products was far from unknown. Indeed, "fame" was something carefully fostered. Negative advertising—the public punishment of bad conduct or bad goods—was general and by round-

[6] Alfred Doren, *Storia economica* (Luzzatto translation), treats the general subject of industrial organization, pp. 477 ff., esp. pp. 487 ff. These sections of his general book are based on his fundamental study, *Die Florentiner Wollentuchindustrie vom XIV bis zum XVI Jahrhundert,* in *Studien aus der Florentiner Wirtschaftsgeschichte* (Stuttgart, 1901), R. de Roover in his "Florentine Firm" modifies Doren in important respects. The statement here made, ". . . nearest to employees . . . multiple-process fabrication . . . foreign market," runs into the fact that some personages, in some of the processes, were quite undepressed fellows; it is especially on this issue that De Roover questions Doren (p. 17). The pious "religious co-operatives" of the Humiliati are still another matter.—Doren, *Storia economica,* 483 ff.

about means built up the custom of the honest. Group "fame" was guarded as a general policy.

In the handling of commodities produced in surplus, to be concentrated and moved abroad, or imported from abroad and distributed locally, the stall, the counter, or the deal at the doorstep or pasture gate could play a part. Buyer-collectors, retailers-peddlers were ubiquitous, operating on their own or with backing from town dealers. To a degree almost always, and in plenty of individual instances completely, the distributor was collector and vice versa. That was, in fact, as true of the great international wholesale merchant as of the pack peddler.

In fact, what the village market or the shop dealing in a city's streets did for the small operator, the great fair or business metropolis did for the larger operators. From this one point of view size was only a matter of degree, whatever medieval law and attitudes, or modern theory, have said.

In practice, wholesale collecting and distributing functions were interlocked, though dealings across expanses of time and space called for the creation of special practices—truly special or special forms of more general practices. This is most apparent in financial arrangements and shipping practices.

Goods moved to and from distant centers by smaller enterprises, especially one-man enterprises, always were handled by the trader in person. He might have all his eggs in the package or chest, two or three bales, sacks, or pack loads with which he traveled.

"All of his eggs in that one basket" is a phrase which scarcely describes, however, the complex of his interests in and out of that basket nor the interests of others in its contents. In the sense that the total loss of the eggs would possibly eliminate him quickly and permanently from a merchant's career, the shoestring enterpriser was wholly committed to that one venture. Yet even he was pretty sure to have some assets not in play on that venture. He had debts too, elsewhere.

At one or several of the places he had left he had sold goods, not for cash, but for credit. More, he had stocked up, before each move, by interlocking selling-buying transactions, leaving goods to be sold in the hands of those who in turn entrusted to him goods for that traveling basket. Other traveling merchants going elsewhere, but due to rendezvous with him far away in time and space, had baskets in which he had a creditor's or a venture-sharer's interest while his own basket—we will still call it that—was similarly full of goods in which others had interests.

Not visible in his basket, but certainly there well before 1200, would be promises to pay elsewhere, at another time, in another money. "His eggs" in "his" basket had to be used to liquidate such dealings in exchange. But as an offset, he might just as well have such payments coming his way; probably he faced both income and outgo at the end of whatever journey he was on.

Furthermore, some, if not all, of the eggs in his basket were covered by agreements which left the risk of loss—in return for a share of profits or (by 1300–1400?) for a fixed fee—on someone else. Whatever the form of the agreement—sea loan, *commenda,* insurance—coverage of risks was common.

Last of all, he was on the books of bankers, with debits and credits, interest-paying or interest-earning in fact if not in external form. Even a pawnbroker could have done business with him—or with his fund-short wife at home.

So much for our shoestring merchant, "his eggs," and "his" basket. Even rich established men became such characters when they went far off the beaten paths, say, to Peking or Delhi. In such far journeys, among true aliens and without a cloak of law and treaty around them, there was little or nothing of the credit insurance, banking, or like features just considered. The man (say a Marco Polo) traveled tightly buttoned up, trusted and trusting little, winding up all deals at each stopping place before moving on.

In and on the edges of Christendom all the mentioned refinements on intraregional trade were found. In fact, they were so developed that the lone-wolf shoestring operator was only a marginal figure—a hopeful novice or a trainee trading for the experience, or a has-been or a never-could-be. The greatest part of real-life intraregional trade was carried on by men who in various ways depended on partners, agents, employees, friends, fellow townsmen or fellow subjects, or outright strangers in all sorts of ways, most of them familiar to us today or used until recently.

At all times partners were in motion. Generally these were the younger partners, still learning by doing but also weighted by responsibilities. Their goods, however, went mostly in the hands of professional transporters, shipping-men by sea or operators of pack and wagon trains by land, and there was no general need for any partner or manager to be along. The traveling partner might become the resident partner at some place with which his house had large affairs. Large houses organized subsidiary houses around such personages and even allowed the junior houses very wide managerial freedom.

The use of the agent was normal, but arrangements were of many sorts; even a single house could use various arrangements for different centers at the same time. Normally the agent was as close as possible to the house, but conditions might be such as to make that not so very close. The preferences graded down about as follows: a relative of a partner, of an employee, a fellow townsman, a fellow countryman, a fellow Christian. He might be agent for a single deal, for a limited time, or generally and for a long while, and his recompense could be in shares, commissions, wages, fees, gifts, or just in good will, connections, and reciprocity.

By the 1400's had come widespread use of the practice of consigning goods. All the varieties and complexities of consignment operations had been encountered and trade custom and law had expanded to cover the practice. Consignment shaded into the operations of agents and subsidiaries in all sorts of dealing in exchanges and merchandising. Branches or linked partnerships consigned goods to one another and drew on one another, while also ordering and accepting shipments.

V

Casa was a term which could be used in common speech to mean a family in the common American sense, the enlarged group which included distant relatives and connections, more like what we call a "clan," the home of the head of the family, the family business, and, as happened in families such as the Medici or the Gonzaga, the dynasty. This warns us that a *casa*'s accounting might mix many other matters in with business costs, profits, and losses.

This is not to say that there were no ideas about the initial contributions in goods, cash, prestige, credit, knowledge of business, special position, good will, and the similiar tangibles and intangibles making up the respective "capital shares" of partners. The core of any business was one or more agreements covering capital contributions very specifically. Derived from the allocation of shares was the apportionment of profits and losses. Also covered by the original or later agreements were arrangements by which partners in effect did business with the partnership or even outside it; renting it business quarters was one item often involved; the channeling of a partner's outside profits through the partnership was also either specified or covered by general practice and law.

There were also accounts drawn on by partners and even employees. These could be handled "properly" on a firm's books and yet in going practice stand in the firm's books unpaid and (perhaps?) unchallenged. There were also expenses that we might today charge to a firm's promotional accounts, to public relations, and so on, which the main partner, or the *casa,* or the firm paid. It was all one. The head of the greater house was wrapped in a style of living which was partly borne by the firm and partly by his share of profits. It really did not matter then; it only bothers us now when we try to appraise such matters with a cost accountant's techniques.

Since no *casa* was rigidly specialized, it could be business practice to buy a lot of merchandise, buy a lot of foreign exchange, buy a share in a city debt, buy the license to collect a tax in some foreign land, buy a flour mill, buy town frontage, or buy some profitable acreage. It only aimed at doing well with all its purchases, knowing, to be sure, that to be profitable each purchase would entail its own sort of handling.

But the purchase of acreage, last mentioned, also could involve the acquisition of rights over peasants' payments in truck and services, court incomes with the duty and right to manage the court, and the possession even of a castle under terms known as "feudal." Purely as business these could all be good business or perhaps only mediocre business. Even if they were "bad business" from the point of view of the firm's account books, they could still be done, systematically, on such a scale as to endanger the functioning of the business as a dealer in merchandise, deposits, and exchange. It might have been a poor way to run a railroad, we might say today, but was it such a poor way to handle the welfare of "the house"? The acreage, the courts, the honors, *and* the titles brought one or more members of a rich partnership into the nobility. That might be a profit indeed, whatever the firm's accountant (or the trustees in bankruptcy) might say.

At least some firms purchased acreage with an eye to real business profits, through improvements of land and stock, of managerial procedures, by consolidations of parcels, and by better marketing. The dissolution of such a firm distributed the partner's capital and profit in new form, in the very best form those days knew.

The *casa* also bore the burden of the duties which its leading members carried as members of corporate bodies, as city officials, and even as politicians. However the books of the business might carry the items, as firm expenses or as partners' private expenses out of profit

shares, it was the sort of expense that had to be met. The firm could not function unless one or more members belonged to a guild or like body, in its home city, or to the "nation" or like body in any foreign center where it had an agent or partner. That meant banquets, costly liveries, presents to functionaries and gratuities to their clerks, a share in group-borne fines and penalties, on top of initiation fees and assessments. If the partners had been "pure" businessmen they might have seen all these items as costs of doing business, to be reckoned in before profits were drawn upon. But they were, to make a general judgment, whole men who got a good part of their psychological and material returns out of life precisely by wearing liveries, giving and attending lush banquets, holding offices the higher and costlier the better, and by being generally on the inside of affairs. These were profits, whatever the books showed. While "private accounts of partners," at least in the case of big firms, these accounts were managerially meshed with the firm's other books.

To be in the favor of men was important. There was also God. His account was right there on the partnership books of great banks and, while He did not drain off His capital save in case of liquidation (a pious enterprise then was made by trustees the beneficiary of His share), His account did take care of pious gifts and expenses, out of His share of profits. Other charity expenses were also met, by the *casa* as a business or as a private family, or through guild or city.

The city made more direct demands. The burden carried by every *casa* (firm, family) in the way of fees, customs, licenses, and such charges was heavy, but taxes proper were mostly transaction taxes or octrois or customs and were heavier relatively on other parts of the population than on the well to do. Beyond these taxes, and less clearly recorded (or noted by modern students) were the welcome expenses for entertaining visiting dignitaries, for functioning as ambassadors at foreign courts, for maintenance of liveried servants and even fighting equipment and fighters, which all came with city dignities. These the well to do did enjoy; from them the *casa* profited. It also profited from lavish dowries given and received and from resplendent funerals. True business profits were drawn on quite properly for these expenses or they might just as properly have been charged to costs of doing true business. It didn't matter what the books said.

Far harder to endure, but both inescapable and self-assessed, since at least part of the business community had at least part of the function of government, were the occasional demands borne almost entirely

by the well to do, which were special income taxes or capital levies, whichever one wants to call them. Or forced loans; they usually came out that way. Or patriotic subscriptions assessed pro rata; they usually began that way. Ransom for the city, peacemaking "reparations," fines by a prince, bribes for a great concession, the raising of an army or fleet for a great defensive emergency or for offensive opportunity all called for special financial measures. The great *casas* as firms and as private households, in most urgent cases, had their total capital assessed (it was at moments like these that the prestige and favor and influence surrounding a house paid off!). Then one, five, or ten per cent was taken over by the city, and that was that. Or the whole operation could be really spontaneous, generated by loyalty, fear, pride, avarice, and all such motives.

However, it was quite rare for the morning after to leave the contributors with stripped shelves and bank accounts. There appeared, where more tangible assets had been, memorandums crediting one who had undergone the levies with an interest in one or more of the shares of an interest-paying public-debt administration, guaranteed by returns from this or that new consumer's tax, with sinking fund, redemption features, and similar improvements. Given a good market for such memorandums, which were salable, the bereaved could watch with satisfaction his old tangibles reappear in the form of these new ghostly valuables. That market was assured by satisfactory interest management, and by the fact that willingly and also by compulsion trustees, managers of pious foundations, and bankers were buyers. When governments, facing still further great outlays, caught on to the trick of cutting interest rates on such securities, there was still another story.

In the 1200's the creation of these valuable intangible interests and the administrative machineries for servicing them began. In the 1300's improvements in their handling were made throughout Italy and by the 1400's consolidated debt administrations which were becoming central banks were in existence. Thus a whole new branch of business activity was well established.

VI

The local markets, predecessors of the thousands of local markets still operating daily, weekly, biweekly, or on other cycles over the world, call for no special comment here.

The greater fairs, especially the cycles in Champagne in the twelfth and thirteenth centuries, and those of Flanders, England, and other countries resembled one another in general however much they differed in details. The banking fairs in the later centuries were essentially of a different sort.

At least the fairs of Champagne, from the late 1100's until they faded out in the early 1300's, were exchange centers for the goods and finances of all Latin Christendom. There is strong, though not absolutely airtight evidence, that at those fairs goods were sold by sample, with inspection on acceptance, and almost entirely for paper promises to pay. Furthermore, neither merchants nor shipments lay immobilized for the six-eight-ten weeks of a given fair; instead shipments from cloth-manufacturing towns arrived for the period of cloth sales, were sold for paper, and on acceptance of allotments were shipped right on by the buyers. On the opposite side cordovans and spices arrived from Italy just when the sale of those items was to begin. They were bought by northerners with paper promises and after inspection and acceptance purchased allotments went on out of Champagne. The settling all around of accounts then took a final three or four weeks and was an operation dominated by the Italian merchant and exchange houses. The money fairs grew later, it would seem evident a priori, out of the operations in the period of "exchanges" in the Champagne fairs, the earlier periods of merchandising having faded out because no longer so necessary.

The real commercial town, where there was all-season buying and selling had appeared in Italy by the 1000's and even earlier. The development of more and more population, production, consumption, and handling of goods brought into existence so many other centers of year-round trade that the usefulness of mercantile fairs declined in part, but never completely. Incidentally all fairs everywhere were amusement centers. The out-of-town buyer needed entertainment; the customer's men had to put up with the burden of wining, dining, and furnishing amusements. But this begins to stray from the subject of business practices!

In doing business there were intermediaries, usually required by law, but also practically necessary. The *sensal* was a key personage at every fair or in every city business district. Nearly always the brokers were licensed, bonded, and otherwise regulated and responsible. Furthermore, they had to be used, for it was through them that control and even collection of turnover and other taxes was effected. They had

their own rights to fees. They were also important in policing and supervising strangers, being in various ways responsible for the private conduct as well as the business conduct of their clients. When they were also innkeepers, all these tasks were rendered easier and they could sell out-of-town clients additional services such as care of horses and servants, and storage and custody of merchandise. Furthermore, they had often two or more languages and served as interpreters. Oftenest, a native of a town who had lived in some other land, learning its ways and goods and speech, and making creditable connections, could have a profitable broker's career on his return. Or outlanders who had become denizens could serve merchants from their old homes.

Then there were the licensed warehousemen, organized stevedores, porters, weighers and sealers, customs collectors, quarantine authorities, and so on. The list of these workers and functionaries was pretty much the same by 1200 or 1300 as it is today and basically the practices were those we still know.

Dealers in money have at last been given a satisfactory description, and the various sorts distinguished from one another by the recent publications of A. P. Usher and Raymond de Roover.

VII

Whatever may be opinion today, at least until well after the generation of Christopher Columbus, politics was business, and business was politics.

It was noted above that large *casas* in their own interests and collectivities of lesser men (*nationes* through their *consules* in foreign centers; city governments directly, guilds) operated in the political world at all levels and in all sorts of ways.

The most spectacular instances were those which involved a firm or its partners in the services of great princes or involved men and firms in large credit transactions with such princes.

The operation of a mint, the farming of taxes, the management of the household, or the victualing of armies were all profitable enterprises and businessmen went into them, often as sidelines to their other affairs. Or their other affairs remained as sidelines to their state services. Some such careers were the wonders of their time, and they perhaps bedazzle us economic historians because the sources for information on such careers is both relatively abundant and definitely gaudy. The point is raised here because evidently there were hundreds of humbler careers, mostly happy stories and not the least bit gaudy, in real medi-

eval life. The Mouches and Biches, the Benedetto Zaccaria, the Acciaiuoli, the Bardi and Peruzzi or even the Medici and Fugger, were as real as real can be; they belong in the story just as Rothschilds, Barings, Pereiras, or Morgans belong in modern business history. And yet in the Middle Ages as in more recent times practices at the ordinary operating levels are not wholly revealed by study of only the spectacular houses. In the over-all, it seems safe to say that as a matter of business practice almost every businessman was happy to take direct employment under a prince or to get himself and his affairs attached to a princely court. Like the purchase of land, incidentally, operations in this category sometimes led to titles.

Some famous great houses have been seen, in retrospect, to have sealed their doom by becoming too heavily loaded with princely promises to pay. The cases of the Florentines and King Edward III of England or the Fuggers and the Hapsburgs, of course come to mind. But a closer look at conditions and at practices evolved from those conditions can perhaps temper our hind-looking criticisms.

To begin with, and negatively, business in a principality without the purchased favor of the prince just could not be carried on at all. Further, the loans proper and the interest paid were in themselves only part of any deal. There were many wide avenues to profit opened to houses high in a prince's favor—pre-emption rights, exemptions, business with courtiers and native merchants, commissions to purchase abroad on the prince's account, protection even in more remote states for goods and agents, and still others. Even back in his home city a great prince's banker got profits in business and prestige from a great connection. Perhaps here is a conclusion which tips in a different direction the scales of the modern judgment we should make of Medici, Bardi, Fuggers, and like houses: a house could grow big on ordinary business but only then, on princely business, could it grow mighty; no house grew mighty and then jeopardized its solvency by getting involved in princely financing. Further, in part, when a house got to a certain critical size, it *had* to help out princes or lose gains already made. It had wealth too great to jettison, placed where the prince could take it, and that was that.

But this paper has now grown too long. Practices, at least some of them, have been sketched in. It is now time to turn to policies. But somehow, I have, in trying to cover the subject of practice become all involved in policy. That seems in fact to have happened to the businessmen of the Middle Ages, so I shall let the subject rest.

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*European Entrepreneurship**

THE task of discussing sociological changes in the field of European enterpreneurship is not an easy one, mainly because of the scarcity of historical data of the earliest period and the fact that there has been comparatively little individual biographical research relating to that period. These changes can perhaps best be illustrated by attempting to define the individual typifying the entrepreneur in each of the three economic periods that Sombart has designated as early, middle or mature, and late capitalism.

Such an attempt at generalization carries with it the danger inherent in all generalizations, in that individual differences are glossed over, and here the very attempt to display a single European type of entrepreneur results in the minimizing of national differences. This doubt does not weigh too heavily in the present case, for it is interesting to note that whatever national differences exist are mostly those due to differences of time—the difference of time in the development of the stages of capitalism. For example, the description of an English entrepreneur of the middle of the nineteenth century would differ little from the corresponding description of a German entrepreneur at the end of the century. We can, therefore, with assurance, characterize the features they have in common as those typical of the entrepreneur of the period of middle or mature capitalism.

But let us begin with the entrepreneur of early capitalism. His type is one that is comparatively easy and clear to outline, since he stands out so sharply from the outstanding pillars of earlier and, indeed, of his contemporary society—the knight and the priest, the lord of the manor and the artisan. It is true that these groups did not lack equal vitality; but, what was new was the coupling of determination, hardness, boldness, and nervous energy with a pronounced desire for the material values of life and the combination of a creative organizational drive with a shrewd effort to reduce daily existence to a bookkeeping rationalization, especially that part of life embracing economic activity.

Persons of this nature were undoubtedly present in all peoples and in all races. The fact, however, that this particular group came de-

* If I am able to present this paper in somewhat readable English, my personal thanks have to go to my friend, Newton D. Friedman, who kindly undertook the correction during the days of our common voyage to the United States.

cisively to the fore is due to the fact that through their attitude toward, and their position in, contemporary society, they were ready, or were forced, to deviate from the traditional form of that society. This explains the extraordinarily large number of entrepreneurs of all countries who came from the ranks of "heretics" and aliens. "Heretics" from this standpoint were believers who were not adherents of the established religion of their country—whether it happened to be at the time Protestants in Catholic countries, Arabs and Jews in Christian countries, or the, shall we say, "enlightened" Catholics in such areas as the Italian states—individuals who did not put too strict an interpretation on the law prohibiting usury, who quoted late scholastic treatises as proof of the permissibility of their capitalist activities and who, in large numbers, atoned on their deathbeds for their sinful lives and preserved themselves from Hell's torments by endowing religious foundations. At the same time, the most energetic of the craftsmen and small merchants moved over into the new enterpreneurial groups.

A sign of the pliability of the old feudal society is the fact that it continued, right up to the end of the eighteenth century, in Italy and in Germany, in France and in England, to assimilate this new group, the "homines novi," as soon as the families concerned had amassed a substantial and secure fortune—either by ennoblement or by marriage of the heiress of the fortune. There are innumerable examples of this process. For instance, the Fugger family which was elevated to princely rank was able, because of large holdings of land, to survive the catastrophe which befell their trade enterprise. The French and English aristocracy were similarly aided. A considerable proportion of the English nobility and the greater part of the gentry are descended from rich entrepreneurs or bankers (usurers as they were called at that time) and it is probable that there is scarcely a single noble family whose somewhat faded coat of arms has not been regilded on one or more occasions with the aid of the handsome dowry brought by some entrepreneur's daughter.

The question of which forces were the most decisive in this realignment of society—the spiritual-religious, the political, or the purely materialistic—is neither an easy one to answer nor one that can be given a single answer. In his famous essay "The Protestant Ethic and the Spirit of Capitalism," Max Weber followed only one line of investigation in showing that the Puritan concept of the sanctity of labor and conviction that material success demonstrates in a fashion God's

approval of industry and commerce had cleared away a whole series of restrictions imposed by Catholicism on capitalism.[1]

When, in apparent contradiction to this thesis, it has been shown, especially by British researchers, how often the development of capitalism was made not only outside and contrary to the law, but also against the laws of the church, these findings cannot be disputed. They do not, however, disprove Weber's thesis, unless that great scholar sought to give a single explanation of the decisive force. That clearly was not his intention; rather, as a researcher, he sought to isolate a single line of investigation, as was his just right, and left it to others to follow other lines.

It is my personal opinion that the decisive characteristic feature of the entrepreneur type in the early capitalist period was his religious heterodoxy on the one hand, or his Protestantism, which had developed beyond heterodoxy into an independent religion, on the other. I make no claim that this is a particularly new idea or a particularly modern explanation, since it was noted by good contemporary observers. Thus, in 1699, William Petty, the great theoretician and statistician, made the observation: "Trade is not fixed to any species of Religion as such; but rather . . . to the Heterodox part of the whole." Stated in more general terms, the capitalist entrepreneur in the same respect as the heretic was a nonconformist; both rejected tradition in seeking, with new methods and techniques, their own ways to God and to mammon.

With this development one important point must be kept in mind. Even though the latter part of the eighteenth century saw a marked increase, especially in England, in the number of these enterpreneurs, the old institutional framework remained intact throughout the early capitalist era. The tempo of evolution increased, it is true, especially in those countries in which great numbers of noncomformists sought refuge after expulsion from their homelands and where, in their will for self-assertion, they introduced new customs and techniques. This was true in Holland, Prussia, some of the Cantons of Switzerland, Austria, and, to some extent, England; in other words, in all those states which offered new homes to the refugee Huguenot and Jew. This acceleration of the rate of technical progress, nevertheless, left almost untouched the old pattern of life and the old economic ideals.

[1] Every scholar will notice that this paper could not have been written without the basis of the historical work of Werner Sombart, the sociological work of Max Weber, and the theoretical analysis of Joseph A. Schumpeter. My own contributions to the subject—in the historical and in the sociological field—are partly listed in my *Geschichte der Volkswirtschaftslehre* (4th ed.; Berne and Tübingen, 1951).

In the country, feudalism lived on, though often in the new form of a capitalist enterprise (*Gutsherrschaft*); and, in the towns, the guild economy with guild controls, even when rather calcified in form, continued its dominant role in government. Competition remained suspect, and the use of machinery was looked upon with the greatest distrust. As late as the middle of the eighteenth century, we find the practice of underselling referred to in England as "shameful," and even an out-and-out businessman like Postlethwayt warned against the new inventions: "What we gain in expedition, we lose in strength."

In his outward manner, therefore, this early capitalist had more in common with the country squire of his own time than with his successor, the entrepreneur of middle capitalism. One needs but to look at contemporary portraits of these men or their wives as painted by Ghirlandaio in Italy or Franz Hals in Holland to observe that they were men of great self-assurance and pronounced, often rather stiff, dignity—persons one cannot imagine walking other than with a measured pace. This conception is supported by Alberti's assertion that he had never seen a hard-working man who did not walk slowly. Of similar importance is the Puritan precept: "Walk with a sober pace, not tinkling with your feet." Further support for this conception is given by that keen observer of French society at the end of the eighteenth century, Mercier, who described the manner of speech of the French businessman as "ton fier et hautain."

In sharp contrast to this type was the entrepreneur of middle capitalism whose precepts were "Time is money," ruthless competition, suspicion of tradition, and consideration of each progressive step as a good deed either for God or man, which, of course, made irrevelant any discussion of its justice or significance, provided only that it proved to be profitable. From where did this new type of entrepreneur come and how was it that he appeared in such large numbers?

Nonconformity and the Puritan ethic remained important also for the middle period, extending through the nineteenth century and, in many countries, until the First World War. There is no other explanation for the fact that in Germany the number of large entrepreneurs who were Protestants was so much greater proportionately than the number of Protestants in the total population. There is no other explanation for the fact that capitalism during the middle period developed markedly stronger in England and Germany than in France and Italy, in spite of the fact that in France Colbert and Saint-Simon were among the new promoters and that there the by-word "enrich

yourself" was followed by a very broad section of the middle class. This, however, does not explain the large numbers of new entrepreneurs since, by the end of the era, differences because of confession faded and, in certain European countries such as Austria and Germany, new beginnings of anti-Semitism arose as indication of the fact that the "true believers" and those groups which previously looked on labor for profit as unworthy of their dignity—*pecunia olet*—now were willing to join the dance of worship to the golden calf.

There are two main explanations for these numbers. First, the French Revolution and the analogous reforms that took place in other countries destroyed along with the old forms of society the old social ideals. Everywhere it was the "gentleman" whom one tried to pattern oneself after—no more the nobleman of old tradition and orthodox beliefs, but a man of old and new wealth, who, by and large, respected the rules of the game established by the business code and who, through his distinctive clothing whether at the stock exchange, in church, at dinner, or at court gave notice of his position as one of the elite of the new capitalist community. Second, the democratic tide, which swept over west Europe, brought with it a strong democratization of capitalism. To an extraordinary degree the ownership of capital broadened, and the new institution of the stock company gave the opportunity for the development of democratic forms in the economic field even in such states as Prussia and Prussian-dominated Germany where political democratization met with great resistance. Here, indeed, each share of stock gave each shareholder the same vote; here, equality and freedom were the rule; here, the parliament of shareholders could choose and recall the governing body; and here, there was a measurement of results, the so-called "balance sheet," which decided the fate not only of the enterprise but also of the elected officials of the company.

In the beginning, since the stock companies were mainly family enterprises which had been reorganized in the new form, there was no difference between the independent entrepreneur and the entrepreneur head of a stock company. Both were the same type, as in all European countries—men of creative imagination with full readiness to assume the risks of business with full dedication of their persons, their reputations, and their family wealth, men who were often inconsiderate in their choice of method provided it guaranteed some measure of success, but who for the most part operated within the framework of what the new business community had established as the boundaries of good conduct. This entrepreneur brought together, in ever new forms, men

and machines for work, manufacture, and trade, discovered with great discernment all the unused productive potentialities of earth, nature, and man, assessed and enhanced them, and thereby helped the expanding economy to ever greater profits and also helped the rabbit-like increasing populations to the best possible existence.

In spite of his acknowledged achievements, the entrepreneur of middle capitalism, unlike all other historical sociological types, failed in two things on which men of all times have laid great value and on which in large measure the relative stability of state and society rest. He was able to give neither to his talents nor to his position a permanent hereditary character, and, in Europe (in contrast to the United States, if I judge correctly), he never became an important factor in the social hierarchy and never became a symbol for the broad masses of the people. The reasons for this are many. In Europe we speak of the "Buddenbrooks fate" and understand thereby that, as Thomas Mann portrayed in his novel by that name, the first generation of the bourgeoisie builds, the second consolidates, the third dissipates and disappears from the scene. In fact this fate has been the rule in France, Germany, and Italy and was not infrequent in England and Switzerland. Families such as Siemens and De Wendel are the exceptions that help prove the rule. In Switzerland the patricians of the eighteenth century were frequently the entrepreneurs of the nineteenth century and are still in existence, although no longer dominant politically or in business life.

In general, it appears that the vitality which in a feudal environment often sustained itself for centuries plays itself out in a single generation in the modern pursuit for profits. This ebbing of vitality, however, is in Europe not limited to the successful entrepreneur but is general. The inclination to take a risk with the consequent readiness to sustain loss is everywhere diminishing. The building of cartels in all imaginable fields, first in England, then more intensely in Germany, and later also in Switzerland is a sign of this generally lessened vitality. One avoids competition where possible; one prefers the pension guaranteed by the cartel ahead of the high profit which can be won through great risks in independent operation. The fundamental significance of this change, which began before the First World War, remained unnoticed because, in the beginning, entrepreneurs of the old school dominated in these combinations. Furthermore, such men as Stinnes and Thyssen could not be prevented by any cartel from reaching the maximum development of their enterprises. After the First World War,

however, and especially in the great depression following the year 1929, it became evident that in all Europe a new type, the late capitalist entrepreneur, was in control.

There are several reasons for this development and I do not intend by reference to the very significant reduction of vitality to give a single cause as explanation. Many other factors enter the picture, most of which are not, or at least are not yet, apparent in the United States. Among these are the following: first, the class-struggle character of the European labor movement which often, combined with a political and indeed with a revolutionary point of view and position, made unavoidable a close alliance of the entrepreneurs. In a country such as Germany, where compulsory military service strengthened the already strong faith in the might of the big battalion, the uniting of the employers, as of the workers, in centralized and authoritarian organizations had the unavoidable effect that the important figures of the founders were everywhere followed by weaker, bureaucratic, secretarial types. In the other countries, nonetheless, the result is similar, although taking place more slowly.

Second, when we refer to the democratization of capitalism as characteristic of the middle period of capitalism, we must keep in mind that in this century, although the democratic form was preserved, the democratic spirit became enervated. The larger the stock company became and the more the custom spread of distributing its capital shares among many corporations and even among many countries, the more the voting right of each share became only a nominal right which was no longer exercised by the shareholder but by the bank where he had deposited his shares. Similarly, the shareholder's meeting nominally remained the controlling body, but its true activity became only that of an approving body for the decisions of the board of directors and the governing officers.

Third, with the increasing size of enterprises and especially the stock corporations, the process by which it was possible for the best man to rise to the top generally faded, and new blood with the true spirit and qualities of the entrepreneur was lacking. The small and moderate-sized entrepreneurs of the nineteenth century, who had built themselves up by hard work, had been schooled and tempered in a tough competitive struggle. In the large enterprises which they created by their success one could no longer, as a rule, rise to the top through battling but only by long and devoted service. For this, it is true, one needed to be efficient, but more often a servile nature was rated higher

than strength of character and a talent for bureaucratic organization higher than bold initiative. When the experiences of the First World War and of the following inflations and deflations destroyed in all European countries faith in progress, in the sense of saving and in the value of the currency of the capitalist order, there remained as successors to the old entrepreneurial generation only a group which had in common with their predecessors little more than the name.

At a meeting of entrepreneurs in 1929, I first drew attention to the importance of this change in the following terms: the place of the owner-entrepreneur has been taken by the director-entrepreneur. It is this same change one has in mind today when using Burnham's phrase "Managerial Revolution." It appears to me, however, that, if one wishes to understand the sociological change and to clarify the difference between the United States and Europe, the designation "manager" will not suffice. For, as demonstrated here in the United States, the manager can develop the qualities of the entrepreneur in a form suited to the times, whereas in Europe he actually represents an entirely new type, the late capitalist entrepreneur.

Before I attempt to characterize him, I wish to re-emphasize what is pertinent for my entire study, that such an "ideal type," as defined by Max Weber, does not require that all its various manifestations come within the definition. This is excluded not only by the very use of the term "ideal" and the fact that personal differences are always present, but also by reason of the fact that, in economics as in art, the emergence of a new style never coincides with the end of the old and that different styles and stages of development of these styles co-exist often for long periods of time. Thus today in Europe there are still many entrepreneurs of the old type, but they are more likely to be found in the small- and medium-sized enterprises which, while still relatively numerous, are unimportant as far as power is concerned. In various of the countries of Europe, they seek through the organization of political parties of small businessmen and artisans to avoid being swept away by the tide of history.

What is it that distinguishes this type of late capitalist entrepreneur from his predecessors? It is no simple matter of outward form that he likes to hear himself called "director" or "director general" or "president," titles which his predecessors would have considered an affront, for the true, regal businessman only wanted to be called nothing else than businessman, merchant, or its equivalent. The title, which as

everyone knows is especially cherished in German-speaking areas, would have appeared to the independent merchant as a sign of dependence. Today, however, this dependence is established as a fact, for the "director" is an employee, the highest paid employee, of the corporation. A large part of the economic, political, and psychological difficulties of this type of European entrepreneur rests on the fact that he has not been ready to draw from this new position the consequence of carefully handling the problem of human relations in his dealings with fellow employees; on the contrary, through economic and political means, he has made the attempt to turn his position into one of absolute mastery over the other employees. Figuratively speaking, the capitalist of the middle period was a sort of monarch in his enterprise, albeit, according to disposition and circumstance, absolute, constitutional, merely authoritarian, or patriarchal. On the other hand, the late capitalist entrepreneur is a parliamentary minister, educated and trained as a bureaucrat, who, having risen to the top, tries to withdraw his position from the democratic forum, to make his appointment not subject to recall, and to fix his salary independent of the fortunes of the enterprise. He is aided in these ends by a process I label as "fascistization of the stock company system."

Fascistization of the system of shareholding means that the process of weakening the once democratic stock corporation has now reached a point at which the democratic rules are no longer of importance. The voting rights exercised through banks or lawyers are no longer used to voice the will of the owners but to protect the dominance of management. And where there might be a danger that a combination of shares may lead to a breach in this dominance, the largest concerns in various European states have met it by the creation of shares with multiple voting rights which were taken over by friendly banks or organizations; and through this caste-voting system, the ordinary shareholder has his rights restricted and a reciprocal insurance system for directors is created. The result is that, although the director enterpreneur has decisions of an entrepreneurial nature to make, the risk of his decisions fall, not on him, but entirely on the voiceless shareholder and, in many cases, ultimately on the state.

For things have developed in such a grotesque fashion that the state which encouraged the development of monopoly capitalism has permitted, as a concomitant, positions of power to arise which in many cases exceeded its own and has found it necessary in Germany, Italy, France, and even Switzerland, to spring into the breach when wrong

decisions by the entrepreneurs threatened one of the giant concerns with ruin.

Thus, in contrast to his predecessors, the European entrepreneur of late capitalism can be sure that, the larger his business, the greater the certainty that the state will bear the ultimate risk. In other words, he presents himself as the champion of private enterprise but, in the event of loss, he is the first to demand help from the state and the last to realize that "socialization of losses" inevitably entails, sooner or later, socialization of profits. The same discrepancy between ideology and reality is also apparent in other fields. The late capitalistic entrepreneur complains about the growth of state bureaucracy and overlooks the fact that its power would not be so great if his own enterprise had not increasingly become a gigantic bureaucratic machine. In the middle period of capitalism, the appointment of a captain of industry to government office meant that a fresh wind blew through its rooms. Today, however, there is hardly a country in Europe of which it can be said that the economy is less bureaucratic than the state—hardly a European country in which security would not be preferred to independence, and the prospect of a pension to freedom.

The consequence is, on the one hand, an attempt to evade decisions and, on the other hand, after the destruction of the feudal framework, an inner weakening of the bourgeois-capitalistic attitude, mentality, and behavior. Indicative of this is the fact that, in western Germany, in which today a neo-liberal economic policy is being given effect, it is not only the trade unions but also the enterpreneurs who are offering resistance to a true competitive economic system. For instance it was the resistance of the entrepreneurs which prevented the price of iron from being decontrolled in the spring of 1952, and there is hardly an entrepreneur who really welcomed decartelization. It is a further indication of this process that there is no Continental country in which entrepreneurs have refused to retain their posts in nationalized or socialized enterprises. Since the genuine will to an independent shaping of life is lacking, it does not matter whether one works as a private or as a state bureaucrat. And finally it is of significance that in few European countries have even so-called "bourgeois" governments had the courage to get rid of wartime or prewar dividend restrictions. However necessary this attitude may be on political or financial grounds, its effect is, nevertheless, that the democratization of profits, characteristic of the nineteenth century, has likewise come to an end.

The same conclusion is to be drawn from the fact that European

reconstruction in recent years has been carried out largely by means of self-financing, to a smaller extent with the help of Marshall aid, but to no extent whatsoever with the help of the home capital market—which, for instance, in western Germany is practically nonexistent. The entrepreneur's contribution, work and achievement, was but is no longer made on the basis of, and to the advantage of, a broad middle-class stratum of society—without, or even against, its sociological framework as a technical experiment in a neutral area in which human beings participate as rational planners, as salary and wage earners, and as consumers, but only to a very small extent still as "capitalists." The great profits of this postwar period, consequently, no longer go to the entrepreneurial economy but to more or less legal trade, and the European *nouveaux riches* of today are more like the jobbers and financiers of early capitalism than the entrepreneurs of the middle period.

Schumpeter has spoken of the obsolescence of the entrepreneurial function. I am not sure whether, and how far, this applies to the United States. But, as far as Europe is concerned, it is a fact that the tendency of technical progress to depersonalize economic processes and make them automatic, together with the ability to reduce to figures more easily all aspects of life, has lessened the weight of individual action as compared with action by boards and commissions. Just as in modern warfare the work of the general staff is more important than genius in the lower and middle echelons, and just as the commanding general has to prove his worth as much by his capacity for co-ordination of personnel as by his ability for strategic improvisation, so in modern European business the work of their general staff, the technician, the factory manager, the accountant, is often of greater importance than the activities of the entrepreneur, which are no longer determinative but merely selective.

The French term for a stock company is *société anonyme,* an anonymous society. Now, in the Europe of late capitalism, the entrepreneur himself has to a large extent become a *personne anonyme.* If this process continues—and it is difficult to see what can reverse it—the repercussions upon the whole middle-class stratum of society will be of immeasurable importance. For it has been from the gains of this, its most active sector, that the middle classes have derived a good deal of their income, their dividends, and their profits upon which they have actually lived; and it was promotion in entrepreneurial ranks that, as a possibility and as a goal, sweetened the weariness of hard work, the abstinence, and the thrift.

As a sociologist one must be wary of venturing any short-term forecast of future developments on the basis of such a sociological change; for history has repeatedly shown that decades can go by before the state and the economy reflect, in a new *Gestalt,* the shifts that have taken place in the sociological substructure. We may, however, from the long-time point of view, take it as certain that the change in the type of entrepreneur and the diminished importance of the entrepreneurial function will, since men of initiative and vitality will hardly die out, result in their seeking other fields for their activity, unless of course the world becomes transformed into a gigantic, bureaucratic, and rationalized machine. This does not necessarily mean that capitalism as an economic system will come to a sudden end; but it would certainly mean that, everywhere, it would lose its dominating role and that other than economic values would again become goals worth striving for in the fulfillment of life.

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DEVELOPMENT OF LARGE-SCALE ORGANIZATION

Electrical Manufacturing Around 1900 *

DURING the two decades prior to 1900, electrical manufacturing companies grew from small, single-plant firms, producing only a few items and employing several hundred workers, to large, multi-plant organizations, with hundreds of products and thousands of employees. This change in the scale of operations required the invention and application of new organizational forms and new administrative procedures. The men who were responsible for these developments were among the first to recognize and solve the administrative problems of large industrial corporations. The work of these men is the subject of this paper.

The largest firms in the electrical manufacturing industry in the 1890's were General Electric and Westinghouse. This study of large-firm management is limited to these two enterprises. The greater amount of material on General Electric's internal operations makes it possible to see the evolution of business management more clearly in the Schenectady than in the Pittsburgh company. There is enough material on Westinghouse, however, to show parallel and contrasting developments.

I

One of the first electrical manufacturers was Thomas A. Edison. When he had invented the incandescent electric light and the other devices which comprised his electric lighting system, he undertook their manufacture. His original factory was his experimental laboratory at Menlo Park, New Jersey, where the first lamps (electric light bulbs) were made in the fall of 1879. By 1883, Edison had three factories, one at Harrison, New Jersey, and two in New York City, with a total work force of over 1,000 men. These plants were small enough and

* I wish to thank Professor W. E. Moore and the other members of the Organizational Behavior Project of Princeton University for their suggestions and criticisms which were of help in the preparation of the final draft of this paper. I did the basic research on the electrical manufacturing industry during 1948–1950 when I held a National Fellowship in Economic History, awarded by the Committee on Research in Economic History of the Social Science Research Council.

close enough together to enable Edison to direct their operations in person. He could, of course, be present at each plant only part of the time and he relied on factory managers to supervise production. Each of these managers was a loyal and trusted associate who had worked with Edison for a number of years at the Menlo Park laboratory and was expected to follow Edison's directions closely. As Samuel Insull, Edison's secretary, wrote in May 1881, "Mr. Edison is the mainspring and ruling spirit of everything." [1]

The fourth factory which made components for Edison's lighting system was not operated by Edison. It was established by Sigmund Bergmann, a German immigrant who had worked for Edison in the 1870's. Bergmann's plant, also located in New York City, manufactured switches, fuses, sockets, junction boxes, and other electrical accessories. Edison advised Bergmann on technical problems but had no part in the manufacturing operations. By 1883, Bergmann was employing several hundred men.

As Edison's lighting system became more widely used, the demand for the system components increased. More productive capacity and a better co-ordination of the manufacturing operations were needed. The first step to meet these needs was taken in 1886 when the dynamo works and the tube works were moved from Manhattan Island to Schenectady, New York, where a large tract of land was acquired. The combined factory was known as the Edison Machine Works. The move to Schenectady coincided with the withdrawal of Edison from the active management of his manufacturing enterprises. By this time, the Lamp Works (at Harrison) and the Machine Works (at Schenectady) were individually incorporated and Edison delegated their operation to subordinates. He controlled these corporations but he viewed them only as income-producing investments which could support his research activities.

To sum up, by the late 1880's, production of the Edison lighting system components was carried on by three companies, the Edison Machine Works, the Edison Lamp Works, and Bergmann and Company. Each of these was a single-plant enterprise, employing between 200 and 1,000 men.

Better co-ordination of the production, sales, and installation activities of these companies was needed. Because they were all making components for a single lighting system, incomplete co-ordination

[1] Samuel Insull, *Central Station Electric Service* (Chicago, 1915), p. xxxix.

meant increased costs and imperfect service to customers. Consolidation of the three firms was long overdue when it finally occurred in 1889. Henry Villard, the railroad financier, engineered the consolidation. He formed a new corporation, the Edison General Electric Company, and exchanged its stock for the stock of the three manufacturing companies. Although the stock exchange occurred in 1889, a single operating organization was not established until August 1, 1890.

Edison General Electric had three plants (Schenectady, 1,300 workers; New York, 700 workers; Harrison, 400 workers) and an executive headquarters which was in lower Manhattan. Apart from the central direction of manufacturing operations, the principal organizational change was in marketing. The independent sales agents, paid on a commission basis, were replaced by salaried employees of the company. In most cases, the sales agents actually became the company employees so that there was less of a change in personnel than in organizational structure.

The primary purpose of this change was to bring the sales activities of the company under direct control of the New York headquarters. A second purpose was reduction in marketing costs. The salaries paid were considerably less than many independent agents had received in commissions. Sales agents who had earned $20,000 and more annually, for example, found themselves on salaries of $8,000, and, as might be expected, complained bitterly at this cut in income. A third reason for the shift to salaried status was to enhance the reputation of the company by selling to the final consumer under the company name. Many of the sales agents, who were, of course, independent businessmen, had established excellent reputations which led customers to have more faith in them than in any particular electrical manufacturer.

The structure of the new marketing organization was mainly the work of Samuel Insull, whose title in the corporate hierarchy was "second vice-president." Insull divided the United States into seven large areas and established a district office, headed by a district manager, in each area. The district manager was in complete charge of sales in his district and was responsible only to the company officials in New York. The district managers were thus given a surprising amount of autonomy in their everyday activities. They determined credit and inventory policies and held, in the district office, the notes, the stocks, and the bonds which were taken in payment for electrical equipment. They were more than sales managers in the narrow sense.

They handled all phases of marketing and, except for periodic reports, were not subject to close control by the New York officials.

The basic explanation for the decentralized nature of marketing seems to be that the district managers were, in most cases, the most successful of the previously independent sales agents. These men continued to operate as independent businessmen in many respects. They felt personally responsible for marketing in their district and took such steps as they deemed necessary to maintain an adequate level of sales. They commonly thought of their salesmen as their own employees, rather than as company employees. As late as 1893, some personnel in the district sales offices still retained the independent attitudes of the sales-agent period and felt almost no ties with that distant entity, the corporation.[2]

II

While the Edison organization was growing from a small operation in Menlo Park to a large corporation with several factories and a nationwide sales staff, a similar growth was taking place in a New England electrical manufactory, the Thomson-Houston Electric Company. Thomson-Houston was principally a producer of arc lighting equipment and the four firms in which it held a controlling stock interest by 1890 were also manufacturers of arc lighting equipment. It is thus not surprising to find that the purpose of these stock purchases had been to increase "the profits [of Thomson-Houston] by checking the competition which existed prior thereto."[3] If this purpose was to be achieved, co-ordination of these five companies was necessary and, since, for reasons now unknown, it was decided not to merge them into a single organization, another method was necessary. The method selected was that of a co-ordinating committee. Early in 1890, a standardizing bureau was organized, composed of representatives of the five companies, whose principal function was to decide which company would manufacture each product so that duplication would be avoided. Thomson-Houston, for example, was to be the sole producer of naval searchlights, while a smaller firm, Excelsior, was to manufacture street-lighting fixtures. Three of the firms—Thomson-Houston, Brush, and

[2] General Electric Company, "Minutes of the Sales Committee," August 21, 1893 (in the historical files of the General Electric Company, Schenectady, New York).

[3] Thomson-Houston Electric Company, *Annual Report,* February 2, 1891, p. 4.

Ft. Wayne—were to continue producing arc lighting systems.[4] The reason for duplication in this instance was that each of the systems was well known and had many loyal customers. It is interesting to note that General Electric continues this practice today in its duplicate lines of household appliances, Hotpoint and General Electric, and its duplicate lines of electric clocks, Telechron and General Electric.

By 1892, Thomson-Houston was comparable in size to Edison General Electric with sales offices located in a dozen principal cities. The territory of each office was not so well defined as the districts of the Edison firm but in one respect the Thomson-Houston sales organization was superior. At the Boston headquarters of the company were located a number of sales managers, each in charge of the sales of a certain product or group of products, such as lighting equipment or motors. These sales managers were charged with the co-ordination of production and marketing and the development of new markets for the products under their supervision.

In 1892, Thomson-Houston, a firm with about 4,000 employees, its plant at Lynn, and its headquarters in Boston, was merged with Edison General Electric, then a firm with 6,000 employees, two plants (the New York factory was moved to Schenectady in 1891), and its headquarters in New York. The new firm which resulted, the General Electric Company, thus had about 10,000 employees and plants at Schenectady, Harrison, and Lynn.

As can be imagined, the consolidation brought numerous organizational problems. One was duplicate facilities. The two companies had made many products in common. Facilities for making motors and generators, for example, existed at both Schenectady and Lynn. Because the General Electric headquarters was to be at Schenectady, it was decided to concentrate there the manufacture of heavy and nonstandard work, such as the large generators and motors which required special engineering, manufacturing, and selling. Smaller, standard items such as arc lights and small motors were concentrated at Lynn.[5] These products were made in such quantities that mass-production techniques were feasible. Consequently, the executive officers of the company had less concern with them and could more easily delegate manufacturing responsibility.

For incandescent lamps, there were two plants, one at Lynn, the other

[4] Thomson-Houston Electric Company, "Report of the Meeting of the Standardizing Bureau," February 24–27, 1891 (GE files).

[5] *Electrical World*, XXIII (January 6, 1894), 4.

at Harrison. Here the choice of plant was made on the basis of manufacturing skill. Each plant was asked to produce a batch of lamps. When these were tested, the Harrison lamps were found to be superior. Henceforth, all incandescent lamp manufacture was carried on at the Harrison plant.

A second organizational problem was that of providing for the necessary direction and control in the executive offices to keep the large enterprise functioning satisfactorily. Part of the solution was to move the headquarters to Schenectady where the top officials could keep close watch on the handling of orders for special equipment. In addition to heavy, nonstandard manufacturing, it was decided to locate the engineering department, the accounting department, and the sales executives at Schenectady.

III

Until after 1900, General Electric continued to operate only the three plants which it inherited in 1892. Primarily because of the depressed conditions which prevailed until the late 1890's, the company did not grow appreciably during that decade. The lack of rapid growth meant that the organizational structure which was developed when General Electric was formed could be maintained without major change for a number of years. The period 1892–1900 therefore lends itself well to a study of the operation of General Electric as a large business organization.

The executive officers of the company were all in Schenectady. At the top was the president and under him were three vice-presidents. The first vice-president was in charge of the sales department. Under him were four or five sales managers, each responsible for the sales of a broad category of products such as railway equipment or lighting apparatus. These sales managers followed the organizational pattern of Thomson-Houston. The second vice-president was in charge of the treasury, accounting, collection, and credit departments. The third vice-president was in charge of manufacturing and engineering. He was responsible for the three manufacturing plants, each with its own manager, and the engineering department at Schenectady. In addition to the three vice-presidents, there was a general counsel who had charge of the law and patent departments.

Four committees played a major role in the operation of General Electric. One of these was the Board of Directors. This thirteen-man

group consisted mainly of investment bankers from New York and Boston, but two company officers, the president and the first vice-president, were also members. As far as can be determined, the full Board of Directors did not normally concern itself with operating problems. In the summer of 1893, however, General Electric was in danger of going into receivership and the board recommended to the Manufacturing Committee "to discontinue work at the factories, other than lamps, except so far as absolutely necessary to fill cash orders already received, or in such few special instances as controlling reasons prevail." [6]

The Executive Committee of the Board of Directors was more frequently involved in company operations. This group formulated policies and rules to guide the company executives. In 1896, for example, the Executive Committee set $17,000 as the upper limit for annual advertising expenses. During the 1893 depression, the committee directed that all salaries above $3,000 be cut 10 per cent and that salaries of $3,000 or less be cut by a smaller percentage.[7] In addition to policy formulation, the Executive Committee kept in touch with policy execution by requiring that important decisions be submitted for its approval. A contract entered into by one of the local sales managers had to be approved if it involved the spending of more than $25,000. A similar rule applied to sales contracts and to the extension of credit. Major organizational changes also had to be approved. One example was the Publication Bureau which was established in 1898 to edit all company literature.

The other two committees were composed entirely of company executives. These were the Sales Committee and the Manufacturing Committee. The former was headed by the first vice-president, with the four or five product sales managers as the other members. This committee had monthly meetings where sales problems and policies were discussed. The minutes that remain indicate that, in 1893, for example, prices, competitive conditions, and particular large equipment orders were discussed and acted upon. The committee was empowered to approve spending contracts greater than $5,000 but less than $25,000. It thus was a decision-making body but, more than that, it co-ordinated the activities of the product sales managers and provided a close contact between these managers and the first vice-president.

The Manufacturing Committee also met monthly. Its chairman was

[6] General Electric Company, "Minutes of the Sales Committee," August 17, 1893 (GE files).
[7] "Minutes of the Sales Committee," September 19, 1893.

the third vice-president and its members were the three factory managers and several other executives, mainly from the engineering department. It dealt with problems in manufacturing and engineering and, like the Sales Committee, co-ordinated policies in its areas of competence. Typical of matters which came before the Manufacturing Committee were product standardization, the selection of the plant to manufacture a particular product, and procedures to use in determining the factory cost of a product. Reports on inventory, production, cost, sales, etc., were frequently prepared for the committee to guide its actions on these company-wide problems.

The executives and committees of General Electric headquarters at Schenectady had as their basic function the direction and co-ordination of the operating units, the factories, and the salesmen. The factories at Lynn and Harrison had a surprising degree of independence. They kept their own accounts, controlled their inventories, prepared their budgets, and determined wages and working conditions. Usually they shipped directly to customers on receiving an order from Schenectady and billed these shipments, at factory cost, to the Schenectady office.[8] This autonomy was apparently possible because statistical reports of operations were frequently sent to Schenectady and because the co-ordinating work of the Manufacturing Committee narrowed the effective freedom of the plant managers.

In contrast to production, sales activities were closely controlled by the Schenectady executives. The independent district sales managers of Edison General Electric were abolished and local sales managers replaced them.[9] These local sales managers were assigned to the same geographical areas and had their headquarters in the same cities, but the sphere of any one local manager extended only to one group of products. The product sales managers in Schenectady were thus paralleled by local product sales managers who directed the activities of a staff of salesmen. The existence of these separate sales organizations for the various product lines can be explained on several grounds. Rarely did one purchaser buy more than one line of products. Street railways bought railway equipment; local lighting companies bought lighting equipment; and industrial firms bought power equipment (and some small lighting equipment). The activities of the various salesmen therefore did not usually involve duplicate effort. Another reason for the product specialization was the technical complexity of most elec-

[8] J. T. Broderick, *Forty Years with General Electric* (Albany, 1929), pp. 62–70.
[9] General Electric Company, *Annual Report*, January 31, 1894, pp. 6, 8.

trical equipment. The salesmen could become much more expert in one product line than would have been possible if each salesman had handled all elecrical equipment.

Some idea of the magnitude of the sales operations can be gained from the following data. In 1895, General Electric had about 10,000 customers from whom were received 104,000 separate orders. Many of these orders involved small repair and replacement parts and were probably not solicited. The larger items, which usually required the call of a salesman, included 12,000 motors and generators.[10]

As has been noted above, the local sales managers were not allowed to spend large sums or to complete large sales contracts without approval from either the Sales Committee or the Executive Committee. Similar approval was required for any sale not for cash. In prices, the local sales managers also had little freedom. The department sales managers supplied price lists which were usually labeled "minimum prices." The salesmen were to try to get higher than list prices and could not reduce a price below list without specific permission from Schenectady. In 1895, for example, W. J. Clark, manager of the Railway Department, instructed his local sales managers: "Do not hesitate to communicate with the Schenectady Office by wire in all emergency railway matters."[11] Earlier, the first vice-president, Eugene Griffin, had told these sales managers: ". . . when you think the circumstances warrant the making of a lower price, do not hesitate to confer with either Mr. W. J. Clark or myself."[12] In some cases, the local sales managers were allowed to reduce list prices by a certain percentage, but each case in which this reduced price was quoted had to be explained in full to the Schenectady office.

The fact that large equipment orders had to be approved in Schenectady made it possible for the Schenectady executives to play a personal part in negotiations for these orders. The manager of the Lighting Department, S. D. Greene, took personal charge of the bids tendered by General Electric for the Niagara Falls generators in 1893. In 1900 President Charles A. Coffin completed the negotiations for the sale of 1,700 motors to the Manhattan Elevated Railway. This contract involved more than $1,000,000. As these examples indicate, the sales organization was designed to bring large and complex prospective

[10] General Electric Company, *Annual Report*, January 31, 1896, p. 9.

[11] Letter from W. J. Clark, Manager of the Railway Department, to Local Office Managers, September 15, 1895 (GE files).

[12] Letter from Eugene Griffin, First Vice-President, to Local Office Managers, July 25, 1895 (GE files).

sales to the attention of top executives. One reason for this procedure was to give the company the greatest possible chance of securing the sale. Another was that such a sale usually involved extraordinary demands on the engineering, production, and financial resources of the company. Only the high ranking executives could judge whether a sale of this kind would be advantageous.

IV

The means of communicating information from the salesmen and factory managers to the Schenectady headquarters to serve as a basis for decisions there and the means for communicating these decisions to the operating units were, first of all, face-to-face contacts. These contacts occurred in the frequent committee meetings, in the trips taken by department sales managers and other executives, and in the occasional meetings for salesmen held in New York and Schenectady. The effectiveness of the various meetings as devices for communication was enhanced by the fact that membership in the committees and the groups partly overlapped. The first vice-president, for example, was a member of the executive committee of the Board of Directors and the Sales Committee, and usually attended the salesmen meetings. O. T. Crosby, manager of the Railway Department in 1893 and 1894, was also secretary of the Manufacturing Committee.

Communications techniques which did not involve face-to-face contact by the communicants were also employed. One of these was the telephone, but, unfortunately, little evidence remains to indicate the extent of its use. It seems likely that the headquarters in Schenectady had telephonic communication with the plants in Lynn and Harrison and with sales offices in the major Eastern cities. The manager of the Metropolitan Telephone Company in New York is reported to have said that in 1895 more telephone messages were handled each day for General Electric than for any other two companies in the city.[13] At that time, the headquarters for the Eastern Sales District was located there.

More evidence exists on the use of the telegraph. Numerous documents indicate that telegrams were frequently sent by salesmen in the field to Schenectady when permission for price cuts or changes in standard terms was thought necessary to close a particular sale. The fact that directives from Schenectady specified the use of the telegraph

[13] J. W. Hammond, *Men and Volts* (Philadelphia, 1941), p. 249.

for emergency situations, however, can be interpreted to mean that this technique was restricted in common practice to those situations.

The printed word, that curse of complex organizations, was, of course, employed extensively. From Schenectady emanated bulletins, circular letters, and directives to plague the local sales managers and the salesmen.[14] The bulletins were usually several pages long and frequently contained pictures and tables. The basic purpose of the bulletins, sent out from one of the sales departments such as railway or power equipment, was to convey information on new products or product improvements to the salesmen. Data on performance and different sizes available were usually included. Some bulletins contained reports on consumer experience with particular items of equipment.

The circular letters were shorter, each treating a specific problem. Because they usually contained directives, it was important that they be acknowledged. This was accomplished by a receipt at the bottom of the first page. Perforations made it easy for the addressee of the letter to detach the receipt and send it to Schenectady after signing it.

The circular letters were sent out over the signature of one of the vice-presidents, the product sales managers, or, occasionally, one of the staff executives in Schenectady. The addressees varied with the sender. The vice-presidents sent their letters to department and local office sales managers or, in some cases, to the local office sales managers. The department sales managers (the product sales managers) sent their letters to local office sales managers and, frequently, only to the local office managers of their product specialty.

Examples of circular letters can be given to illustrate the sender-addressee relationship and also to indicate their content. The first vice-president, Eugene Griffin, sent a circular letter to local office managers on April 9, 1895, instructing them to sell equipment F.O.B. the factory wherever possible. Another letter from Griffin, dated April 4, 1896, informed the department and local office managers that a patent cross-licensing agreement had been made with Westinghouse. It should be noted that in these two letters Griffin treated policies which applied to all or most of the company's products.

In addition to the bulletins and circular letters, the salesmen received a third kind of printed matter from Schenectady, the price lists. These were sheets of moderately stiff paper, about six inches square and

[14] The bulletins, circular letters, and other documents referred to in this section are in GE files.

folded once. Each folder applied to one type of equipment (arc lamps, bipolar dynamos, transformers, belt-driven generators, etc.) and contained the prices and technical specifications for the various equipment sizes. The prices of accessories were usually also listed. Price lists for the different types of equipment were printed in inks of different colors to help the salesmen select easily the list he desired. Price lists for arc lamps used blue ink; for transformers, green ink; for bipolar dynamos, brown ink; for watt meters, red ink, etc.

The price lists permitted price changes over some or all product lines with little cost and considerable speed. The prices in the printed folders, the "list prices," were the base for discounts. A change in the discount figure, announced from Schenectady, was all that was needed to effect a change in the thousands of prices on the numerous products. In 1899, for example, the selling prices of all products were increased from a 40 per cent discount from list to a 30 per cent discount. At other times, the price of motors was set at a 60 per cent discount from list and the price of watt meters at a 40 per cent discount. The list price-discount system also made it possible to establish, without much difficulty, special prices for certain classes of customers. All that was necessary was to promulgate a special discount.

The written communications did not, of course, proceed only from the Schenectady headquarters to the local sales managers and the factory managers. The operating managers had to make reports on their activities to their superiors in Schenectady. The local sales managers were required to report on competitive conditions, prospective sales they had lost to competitors, customer reactions to the products, and future sales prospects. Similarly, the factory managers were required to send in production data of many kinds. The flow of information from the operating units to the Schenectady executives was an important element in the decision-making process at the company headquarters.

V

George Westinghouse was already widely known as a manufacturer of railroad air brakes, switches, and signaling devices when he undertook the manufacture of direct-current incandescent lighting apparatus in 1884. By 1890, the Westinghouse Electric Company was operating two plants in the Pittsburgh area, one in Newark, and one in New York. The Pittsburgh plants manufactured alternating-current equip-

ment, arc lighting equipment, and some railway apparatus. The Newark plant made direct-current equipment for arc and incandescent lighting and for power. Incandescent lamps were produced in both Newark and New York. The operation of these widely separated plants as one production organization was inconvenient and costly. Where plants were specialized to avoid duplication in facilities, shipment from more than one plant was necessary to supply a complete lighting or railway system. The d.c. generators for Westinghouse railway equipment, for example, were made in Newark, although the railway motors were made in Pittsburgh until 1892. Another difficulty was the existence of two groups of engineers, one in Newark and one in Pittsburgh. Because the Garrison Alley (Pittsburgh) factory was better equipped than the New Jersey plant, machines designed in Newark sometimes were built in Pittsburgh.[15]

The Westinghouse firm (after 1889, the Westinghouse Electric and Manufacturing Company) decided to consolidate all of its manufacturing in one large plant. The company purchased a site about twelve miles east of Pittsburgh on the Pennsylvania Railroad and began construction early in 1894. By 1895, the buildings were finished and the movement of equipment was completed during the spring of that year. The new works was expected to reduce operating costs by about $30,000 per month. Approximately 3,000 workers were employed there.

The move to East Pittsburgh was accompanied by changes in the organization of engineering activities. At Garrison Alley, where there had been no engineering department, the engineering work had been mainly carried on in the testing department and, to some extent, in the laboratory. At East Pittsburgh, an engineering department was established, the laboratory was abolished, and the testing department reverted to testing equipments before they were shipped to customers. The newly formed engineering department was augmented by the engineering force from the Newark plant. This resulted in a department of considerable size with sections for different products such as transformers, generators, and motors.

Westinghouse intended to sell the factory buildings made vacant by the transfer of manufacturing to East Pittsburgh but in 1897, George Westinghouse, the president of the company, reported that it had "not yet been possible to dispose of the old factories of your Company and of the United States and Consolidated Companies. It is expected that with the improvement of business a market will be found for these

[15] B. G. Lamme, *Electrical Engineer: An Autobiography* (New York, 1926), p. 55.

properties." [16] When business improved, however, the company found that it needed these factories and, except for the Garrison Alley building which was eventually sold, they were in operation again by 1900. The Allegheny plant was converted into an iron foundry, lamp manufacture was resumed in New York, and the Newark plant was used to make meters, relays, and other accessories. Production of generators, motors, and other heavy products remained at the main works in East Pittsburgh.

The structure and operation of the Westinghouse organization are largely unknown because very few records remain. Measured by employees, sales, or assets, the Pittsburgh firm was approximately one half the size of General Electric during the 1890's. More informal procedures and a hierarchy of fewer echelons are therefore to be expected. Some bits of evidence to substantiate this can be given. In Westinghouse, there were only two vice-presidents, no hierarchy of sales executives, and no managers of product sales departments in Pittsburgh. As far as can be determined, there were district sales offices in six or seven major cities, manned by independent sales agents operating on a commission basis. It is interesting to note that by 1906, when annual sales had reached $25,000,000 as compared with $5,000,000 in the 1890's, and when the number of employees had reached 15,000 as compared with 3,000–5,000 in the 1890's, the sales force was organized very much like General Electric's of the 1890's. There were four product sales managers in Pittsburgh, who reported to a head sales manager, and the salesmen in the field had become employees of the company.

Some documents indicate that George Westinghouse took an active part in the important problems facing his company during the 1890's.[17] He helped negotiate the contract for the Niagara Falls generators; he traveled to Chicago to secure the lighting contract for the 1893 World's Fair; he helped design the generators and lamps used at the fair; and he took a personal interest in many new products (such as turbogenerators) which his company developed. His concern with these problems reflects the same top executive attention to large sales contracts that existed in General Electric. The fact that Westinghouse was even more involved in everyday affairs of the company than Coffin can be attributed to a number of factors. The Westinghouse company was much smaller than General Electric and George Westinghouse was

[16] Westinghouse Electric and Manufacturing Company, *Annual Report,* June 23, 1897, p. 8.

[17] These documents, principally letters, are in the historical files of the Westinghouse Electric Corporation, East Pittsburgh, Pennsylvania.

more an owner-manager than a hired executive. He founded the company, supplied a considerable part of its capital, and headed it for more than two decades. His interest in technical as well as business and administrative problems was a reflection of his outstanding ability as an inventor of mechanical and electrical devices.

VI

In summary, what can be said about the evolution of large-firm management in the electrical manufacturing industry? By 1900, General Electric and Westinghouse were business organizations with a number of common features. Each manufactured a complete line of electrical products, including apparatus and accessories for lighting, power, and transportation. Each firm had a large plant where the company headquarters was located and where heavy electrical equipment was manufactured. In addition, each firm had several plants at other locations where light electrical devices were made. Both firms had nation-wide systems of district sales offices. In General Electric, control over operations was centered in the Schenectady offices. Although there is very little evidence on the location of control in Westinghouse, the authority vested in the president was probably substantial.

In administrative control over operations and in the physical concentration or dispersion of facilities, General Electric and Westinghouse were surprisingly similar. The explanation of this similarity may be found in the nature of electrical products, the growth pattern of the electrical manufacturers, and the nature of the market for electrical products. These factors will be considered in turn.

Electrical products had to be part of a system—a lighting system, a power system, or a transportation system. To ensure that the component parts would operate together in a satisfactory manner, manufacturers found it advantageous to produce all, or nearly all, of the components of any system they chose to market. They also found it advantageous to sell and install the complete system. It was primarily the system characteristic of electrical products, therefore, that led an electrical firm to manufacture a full line of products and to assume the responsibility for placing them, in operating condition, in the hands of the users.

Close co-ordination of manufacturing, selling, and installation was obviously necessary if the purpose in handling a complete line of products was to be realized. This need for co-ordination seems to be a

basic reason for the placing of the executive offices at one location and for administrative centralization in marketing and, to a lesser extent, in manufacturing.

As indicated above,[18] electrical products can be classified into two categories: heavy and light, or alternatively, nonstandard and standard. The first classification (heavy or nonstandard) includes large generators, turbines, motors, and switchgear, most of which were designed and manufactured to order. Their size and complexity called for one large plant and for location of the company's engineering department at that plant. The top executives were especially interested in these custom-made products because they drew heavily on the company's resources and because most profitable contracts involved one or more of them. Consequently, the executive offices were located at the single heavy-equipment plant (which thereby became the main works) and the top executives were able to control very closely all aspects of large-equipment design and manufacture.

The light, standard electrical products included incandescent lamps, arc lamps, watt meters, and small motors, generators, and transformers. Generally speaking, these products were manufactured in advance of sale and in accordance with standard designs. The manufacturing operation was therefore much more routine than in heavy equipment and could be administratively decentralized to a high degree.

Consideration of the growth pattern of the electrical manufacturers reveals why the light manufacturing plants were geographically as well as administratively decentralized. Both General Electric and Westinghouse grew to some extent by merger and thereby acquired a number of plants at scattered locations. Because light manufacturing could be administratively decentralized, there was no need for geographical centralization (assuming that no locational factors called for it). Some of the acquired plants were consequently kept in operation for making standard items.

The mergers also help to explain the geographical centralization of the executives. These men, prior to merging, had in most cases been strenuous competitors. A serious problem was to get them to work together as a team in order to develop an effective administrative hierarchy.[19] The solution was to place them in close proximity in order that they could have frequent face-to-face contact.

[18] See p. 382.

[19] I am indebted to Professor F. F. Stephan of Princeton University for this point and for other helpful suggestions.

The significant fact about the market for electrical products was that the buyers were business firms who employed electrical equipment to produce lighting, power, or transportation service for their own use or for sale to the general public. Their activities and requirements had to be known to the electrical manufacturer's salesmen if the latter were to do an effective job of selling. In addition, the salesmen had to make sure that equipment was properly installed and that it operated satisfactorily. In effect, then, the electrical products salesmen were sales engineers. This engineering service, tailored to the individual buyer, required that the salesmen be strategically placed so that customers could be taken care of promptly and efficiently. Because the customers were spread widely throughout the United States, geographical decentralization of the marketing organization could not be avoided.

More general forces may also be partly responsible for the centralized control of marketing and design engineering. The 1890's were depressed years for the electrical industry. From 1893 until nearly 1900, sales were difficult and prices were low. The chaotic market conditions required price adjustments and variations in the other terms of sale. The top sales executives were forced to check frequently on product prices in all markets to determine whether the prices which could be obtained were above cost. The individual salesmen were given a minimum of authority. Market conditions changed so rapidly that no general delegation of authority to carry out policies which had been determined higher up was possible. Almost each sale was a special case that received attention from one or more top executives.

Another general force was the stage of the technological development of the industry. Electrical apparatus was so new that improvements and entirely different types appeared frequently. Competition on the basis of product quality was so severe that a firm could lose almost its entire sales of a particular product because a competitor had marketed a superior one. In these circumstances, product improvements were as strategic as prices and fully as chaotic. The result was the location of the engineering department at headquarters.

In conclusion, the organizational forms, the administrative procedures, and the problems of large-firm management in the early electrical manufacturing industry look surprisingly contemporary. Committees of executives played an important role; there was an elaborate hierarchy; and written communications—letters, bulletins, memorandums —were the order of the day. Among the important issues were whether salesmen should be paid by commission or salary, whether control

should be centralized or decentralized, and whether one large plant or a number of small ones is more desirable. This contemporary look probably resulted from the fact that the electrical manufacturing industry, founded on a new and rapidly developing technology, was one of the first of what we now think of as the modern industries.

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The Soviet Steel Industry

THE purpose of this paper is to describe briefly the administrative organization and planning system of the typical large Soviet steel plant, and then show how the plant director carries out one of his essential functions both with the help of and in spite of the institutional framework within which he has to operate. Our attention will be focused primarily at the level of the individual firm, but in order to appreciate the problems of firm management we must first see how the individual enterprise fits into the all-pervading Soviet industrial bureaucracy.

I

The administrative hierarchy is divided into three major levels: first, the Council of Ministers; second, the Ministry of the Iron and Steel Industry; and, third, the various producing enterprises. Above this hierarchy final authority and responsibility rest in a legislative body, the Supreme Soviet of the Union of Soviet Socialist Republics, the highest organ of state power.

The work of all of the industrial ministries is directed by the Council of Ministers of the U.S.S.R., the highest executive and administrative agency of state power in the Soviet Union, appointed by the Supreme Soviet. In the intervals between sessions of the Supreme Soviet, the Council of Ministers is responsible to the Presidium of the Supreme Soviet. The council, which is made up of the various ministers in charge of each major sector of the Soviet government, exercises over-all supervision, leadership, and co-ordination among the various branches of the economy. Subordinate to it are a number of subgroups, which support it in primarily a staff capacity. The two most important subgroups are the State Planning Commission of the U.S.S.R. (Gosplan) and the Ministry for State Control. The State Planning Commission is the central agency for organizing and directing the entire planning system. The Gosplan has its own central offices in Moscow and a network of territorial offices throughout the U.S.S.R., but in its work relating to iron and steel it relies heavily on the planning agencies of the Ministry of Iron and Steel. The Ministry for State Control exercises general inspection of steel and other industries for the Council of Ministers.

At the head of the Ministry of Iron and Steel is a minister who is responsible to the Council of Ministers for the entire activity of the industry and especially for the fulfillment of the various plans. He appoints and dismisses the directors of subordinate units and issues orders to them.

The central administrative apparatus of the Iron and Steel Ministry consists of two types of organizational units: (1) production-territorial units, which control producing enterprises in particular districts or enterprises producing certain types of goods, and (2) functional divisions which supervise certain functional operations of an auxiliary nature such as transport, personnel, supply, planning, etc. The principal production-territorial units are called Chief Administrations (Glavki). The production of ordinary iron and steel (pig iron, steel, and rolled products) is directed by two Chief Administrations and one so-called "Production" Department. The dozens of iron and steel plants in the territory of European Russia stretching from Tula to the Black Sea are directed by the Chief Administration for the Iron and Steel Industry of the South and Center. The Chief Administration for the Iron and Steel Industry of the Urals (Glavuralmet) directs the operations of a number of small iron and steel plants in the Urals, operating wholly or in part on the basis of charcoal-smelted pig iron. The remaining nine basic iron and steel plants in the East are supervised directly by the Ministry in the catch-all Production Department.

Nine other Chief Administrations supervise plants scattered all over the country, but producing particular types of raw materials or finished products. Special Steel (Glavspetestal') directs the operations of several plants producing high-grade steel, usually employing electric furnaces. Steel Pipe (Trubostal') directs specialized pipe-casting and rolling plants in the South, Center, and Urals. Another Chief Administration directs all of the plants in the U.S.S.R. which specialize in ferroalloy production. A fourth Chief Administration directs a number of scattered small plants turning out Metal Articles (Metiz), which approximate what Americans call "builder's hardware." Plants devoted to the production of important raw materials are organized under the Chief Administrations for Firebrick, Ore, Coke, Ferrous Metallurgy, Timber, and Mining.

Most of the chief administrations mentioned above except for Ore and Timber manage directly their subordinate enterprises operating in the field. Thus a three-link chain of command is typical (ministry—chief administration—operating enterprise).

The *functional* (as opposed to production-territorial) units in the Ministry of Iron and Steel have no direct administrative power over the operating plants in the field, existing merely to serve the production-territorial Chief Administrations in a staff capacity.

We have described briefly the organization and principal functions of the two top levels in the administrative hierarchy, the Council of Ministers and the Ministry of Iron and Steel. At the base of the pyramid is the third level comprising the various producing units or enterprises. Each enterprise is a legal entity, operating under a separate charter with full administrative control in the hands of a director. Each enterprise has its own working and fixed capital and also its own checking account in the local branch of the State Bank through which must pass all its receipts from sales and expenditures for whatever purpose. "Thus in the USSR the industrial enterprise is an independent production unit employing cost accounting, with an independent financial balance, and operating in conformity with an over-all state production plan." [1]

The key personnel in the administrative hierarchy of an enterprise are the director, the shop chiefs, the foremen, and the brigade leaders. The director normally has full managerial power within the iron and steel plant and ordinarily selects all basic personnel. He is supposed to bear full responsibility for the work of the enterprise as a whole within the framework of the tasks set for him by the state plans. His first assistant is the chief engineer, who shares with the director responsibility for the work of the entire firm. His direct responsibility is for day-to-day operation of both the production and auxiliary shops. The enterprise director also has assistants for commercial work (comptroller), construction, and various phases of personnel administration.

Shop chiefs are directly subordinate to the director and chief engineer and supervise the economic and technical operations of each one of their shops (for example, blast furnace shop). The foreman directs a section within the shop and is subordinate to the shop chief and responsible to him for the work done. Assisting the foreman, the brigade leader directs a group of workers and works with the members of the brigade, instructing and giving them technical aid in their production tasks.

The duties of the staff organizations depend on the size of the operational unit to which they are attached. At the bottom level of the

[1] A. Arakelian, *Industrial Management in the USSR*, trans. E. A. Raymond (Washington: Public Affairs Press, 1950), p. 122.

brigade the administrative functions are so simple that the brigade leader performs most of them himself. But at the top, the enterprise director has a complicated staff organization, as well as a number of assistants to help him carry out his basic tasks. The planning department drafts current and prospective plans for the enterprise, accepts orders, calculates costs, and analyzes the economic activity of the firm. This long-range planning must be distinguished from current operational planning and work scheduling, which is done by the production department under the chief engineer. The financial department conducts day-to-day financial operations with the local branch of the State Bank and audits and inspects financial expenditures and receipts of the enterprise. The personnel department keeps personnel records, has charge of hiring and firing, training, and discipline. The Assistant Director for Labor and Personnel also may have charge of the labor and payroll department. The department of technical control has charge of inspection and quality control. New construction or reconstruction of furnaces or other equipment is in the charge of an assistant director for capital construction, although much of the new plant building is carried on by outside organizations.

The auxiliary and production shops of an iron and steel plant (with which we are most concerned) are directed by the chief engineer. To help him operate these shops he has under him the safety department and an assistant chief engineer in charge of technical production planning. Each shop has staff organizations similar to those described for the enterprise as a whole, but shop staffs are smaller, simpler, and less comprehensive. The work of the typical fully integrated iron and steel plant is carried on by some forty odd shops, each of which falls into one of four main groups: basic production shops, auxiliary shops, by-product shops, and service shops.

II

In order to understand how such a large and complicated organization operates, those not already familiar with Soviet industry may be helped by a brief description of planning and production programming within the "typical" iron and steel plant. In the brief space that can be devoted to it here the coverage must of necessity be superficial.[2]

[2] Those interested in a long, detailed, and informative discussion are referred to a recent book on the subject: B. Ia. Riabin'kii, *Planirovanie Proizvodstva na Metallurgicheskom Zavoda* (Planning Production in Iron and Steel Works), (Moscow, 1950). The description is based on it.

Soviet industrial plans are differentiated according to the period involved: monthly, quarterly, annual, or five-year plans. Occasionally other plans for longer periods or special purposes include segments of the iron and steel industry. Five-year plans are grandiose and allow for the development of new mineral deposits, new railroads, canals, and other projects requiring long periods for their completion. The general prescriptions are made much more precise and inevitably modified in the plans drawn up for particular years. The annual plan is broken down in full detail into quarterly plans, which for seasonal and other factors are never simply the totals of the annual plan divided by four. In the quarterly plans production targets are broken down into monthly components. However, monthly plans for labor and other costs are not set up.

Enterprise plans are submitted first to its chief administration for co-ordination and approval and then sent up to the ministry which adjusts the proposed plan to correspond with the stated demands of the various consumers as indicated in their own plans. Here adjustments are also made to conform with planned output of fuel, iron ore, coke, and other materials which have to be furnished by other branches of industry. These plans are then pushed up the line to the higher administrative organs for approval in accordance with a prearranged time schedule starting the first of August for annual plans going into effect the following January. Adjustments are made at the top level of the Council of Ministers and their basic directives are sent down the line again outlining various phases of the plan (output, capital construction, costs, technical coefficients, etc.). In accordance with these directives each enterprise has to make up its own "Tekhpromfinplan" in detail and these are then sent to the ministry for adjustment and final approval. The incredible tangle of red tape involved in this sequence of events can be appreciated when we realize that the plan has to pass through the administrative hierarchy five times as it develops from a general directive to a finally approved plan.

Within the enterprise there are two types of planning, so-called "technical-economic" and operative, daily production planning. The former is called the Tekhpromfinplan, which is "alphabet soup" for technical-industrial-financial plan. It contains seven basic sections: the production program setting up output targets in both physical and value units; the labor plan in terms of input-output and the wage bill; the planned productivity of each piece of equipment; the plan of material-technical supply including consumption and inventories of raw materials, fuel,

replaced equipment, etc.; detailed cost calculations, and the financial plan of the enterprise including an account of all working capital as well as all anticipated money receipts and expenditures. In order to stimulate continual improvement in production methods there has recently been required an "organizational-technical improvement" plan in which the enterprise must describe in detail a list of innovations it plans to introduce during the planning period.

On the basis of the production plan the current production program is prepared for all shops and major pieces of equipment. These programs are prepared for monthly and weekly periods with breakdowns for each day. The monthly program is spelled out in the three dimensions. First, the orders received from the sales office are arranged and classified by size, grade, type of product, and customer. Then a production program is set up for each shop and piece of equipment concerned with filling the orders, and, thirdly, the work to be done is set forth in detail over time for each week and each day.

During the 1930's the Russians learned from bitter experience that the only way to plan production consistently is on the basis of input-output estimates, which in turn depend on an accurate knowledge of technical production functions. It is obvious that, in order to turn out a million tons of rolled steel, the plant director must know how much ingot steel, scrap, iron ore, labor, and equipment is required. Within the plant this has been developed in the greatest detail imaginable. Since 1937 these estimates have been made at all levels of economic administration, culminating in the five-year plans for the national economy as a whole. It is called the "method of planned balances." The closest approximation in American experience is the Controlled Materials Plan or C.M.P. developed during the Second World War to channel certain vital war materials into essential production. The Russians, however, apply the method to practically all industrial materials of whatever nature as well as to capital equipment, labor, and other factors of production.

III

I have chosen the phenomenon of technical innovation to illustrate how entrepreneurial functions are actually carried on within this institutional framework. As Schumpeter put it, "Innovation is the outstanding fact in the economic history of capitalist society or in what is purely

economic in that history, and also . . . is largely responsible for most of what we would at first sight attribute to other factors. . . . Surely, nothing can be more plain or even more trite common sense than the proposition that innovation, as conceived by us, is at the center of practically all the phenomena, difficulties, and problems of economic life in capitalist society . . ." [3]

Students of the Soviet economy agree that rapid adoption of modern techniques has been a cardinal feature of Soviet heavy industry, particularly since the end of the Second World War. In view of the complexity of the greatest bureaucracy the world has ever seen, together with its maze of red tape and rules, one wonders how the Soviet steel industry manages to install any technical improvements at all. The answer is twofold. In the first place the whole Soviet regime generates tremendous pressure to foster the development and adoption of technical innovation, and, secondly, the members of the Soviet bureaucracy do not follow its rigid laws and rules, a trait which is particularly characteristic of ambitious plant directors. As Professor Granick says, "He [the plant director] is expected to initiate new methods—both technical and organizational—and usually to put them into effect on his own responsibility. The pressures of the Soviet industrial system tend to make conservatism the sure road to failure and demotion." [4]

To illustrate these features of Soviet heavy industry, I shall describe the promotion of several innovations by the director of the Magnitogorsk Iron and Steel Combine, far and away the largest industrial enterprise in the Soviet Union, and probably the largest industrial plant in the world outside of the United States of America. It produced more pig iron and considerably more steel and rolled products than the entire Tsarist industry produced before the Revolution, and more than the Soviet industry was producing when construction began at Magnitogorsk twenty-three years ago. Last year Magnitogorsk mined approximately nine million tons of iron ore, smelted over four million tons of pig iron and worked it up into thousands of finished iron and steel products. The combine employed in the neighborhood of 50,000 persons. The immensity of such an operation presents formidable problems of internal co-ordination and administration.

From 1940 to 1951 Magnitogorsk's director was Gregory Ivanovich

[3] *Business Cycles* (New York, 1939), pp. 86–87.

[4] David Granick, "Plant Management in the Soviet Industrial System" (Ph.D. Thesis, Columbia University, 1951), p. 9. On the organization of technical and scientific research in Soviet metallurgy see M. G. Clark, "Economics of Soviet Steel" (to be published by Harvard University Press in the spring of 1953), chap. iii.

Nosov. Born in 1905 in a working-class family, his working life began as an apprentice locksmith at Ust-Katav in the southern Urals. After finishing workers' high school at Ufa and the Tomsk Technical Institute, he studied at the Siberian Metallurgical Institute. In 1932 he returned to the factory, working first as a steel founder in the small Beloretsk works, becoming shift foreman, chief foreman, and then general foreman of the open-hearth shop. Then in 1938 he was appointed chief engineer of the big Kuznetsk Iron and Steel Combine. The next year he was transferred to the same post at Magnitogorsk and in 1940 was named director of the entire combine, which position he held until his death on August 7, 1951, at the age of forty-six. For his accomplishments as plant director he was three times awarded the Order of Lenin and twice received the fabulous Stalin Prize with its enormous stipend.[5]

When Nosov took over in 1940 the most backward department of the plant was the open-hearth shop. It had become a bottleneck preventing the full utilization of rolling-mill capacity. Under his leadership the Magnitogorsk engineers, in collaboration with the staff at the Kuznetsk plant, worked on the problem of improving open-hearth productivity and capacity. Their main point of attack was to increase the amount of steel that could be smelted in each furnace by deepening and redesigning the bath and modifying the tapping apparatus. The main obstacle to this procedure was that, as the capacity of the furnace increased, the quality of the steel produced was less subject to control and inferior to steel produced in the furnaces when operating in accordance with their original American design. After fifteen years of experimentation the problem of quality was apparently solved in 1947–1948, and now Magnitogorsk, Kuznetsk, and two other Soviet plants are operating 350-ton furnaces, which to the best of my knowledge are the largest stationary open-hearth furnaces in the world. In 1951 the daily output per square meter of furnace floor averaged 1.71 metric tons more than it did in 1938, the year before Nosov became chief engineer.[6]

Nosov, of course, did not confine himself to purely technical innovations. The difficulties of his open-hearth department were also administrative. The furnaces were periodically running out of gas, short of scrap or pig iron, lacking ingot molds at the right time in the right

[5] *Pravda,* August 10, 1951.

[6] *Stal',* 1947, No. 3, p. 196, No. 8, pp. 690–701, 1948, No. 1, p. 20, No. 8, pp. 683–91, and No. 10, p. 867; *Pravda,* October 4, 1949; *Trud,* January 31, 1952.

place, and continually short of skilled operating personnel. Nosov's solution was to divide this immense shop into the two self-contained shops. As a consequence new skilled workmen were trained and much more attention was paid to technical details; new control devices were introduced, new laboratories set up, and the whole organization renovated.

With the German attack and destruction of the basic centers of iron and steel production in western Russia, Magnitogorsk suddenly became kingpin in the whole defense economy behind the Urals. The giant plant was called upon to produce hundreds of new items it had never produced before, and to devise many new methods of making them.

The German occupation left the Soviet defense plants desperately short of ferroalloys, essential to the production of modern war equipment. The main centers of ferroalloy production were either destroyed or isolated from the rest of the Soviet economy, and the shortage was further enhanced by increased wartime requirements. So Magnitogorsk undertook the difficult task of producing in her giant blast furnaces ferroalloys which had previously been produced only in small blast or electric furnaces, and by the second half of 1942 was turning out ferromanganese from nearby supplies of low-grade manganese ores.[7]

Until after the German attack every bit of Soviet armor plate was produced in the southern and western regions of the U.S.S.R., but one jump ahead of the Wehrmacht an armor-plate rolling mill was evacuated to Magnitogorsk and set up in a warehouse. By October 1941, it was turning out finished armor plate. Magnitogorsk's standard rolling mills were adapted to produce many complex parts for tanks, such as tank tracks and fluted springs, which normally would have been milled. By such innovations Nosov claimed to have economized up to one ton of metal per tank. During the war Magnitogorsk produced enough armor for over 50,000 tanks, and her open-hearth furnaces turned out about 100 new types of steel that they had not smelted before the war.[8]

Most Soviet plant directors concern themselves primarily with maximizing annual profits, raising productivity, and fulfilling quarterly and annual plan obligations and other short-run goals. Praise, publicity, and material rewards go to plant managers for filling and overfilling current objectives, with less concern given to the effect current behavior may have on the industry's position five or ten years hence. Geologists,

[7] Clark, "Economics of Soviet Steel," chap. v.

[8] G. I. Nosov, "Magnitogorsk Metallurgical Combine Named after Stalin," *Stal'*, 1947, No. 11, pp. 1045–50; also p. 969, and *Trud*, September 30, 1945.

top planners, and staff members of the higher echelons of authority, on the other hand, have to worry about future developments, and one often finds them pleading their case in the journals put out by the various academies, ministries, and the State Planning Commission, urging plant directors to devote more resources to maintenance of equipment and to conserve dwindling supplies of raw materials. In the case of Magnitogorsk, however, central authorities permitted the mountain of magnificent ore to be stripped of its high-grade deposits.

On the eve of the war, efforts were being made to cut down on consumption, but the occupation of the Ukraine forced the exploitation of Magnitogorsk ores at an even faster rate. The high-quality upper layer was seriously depleted, and as the shovels dug into the lower zone the most sulphurous ore was discarded. The seriousness of the developing shortage was appreciated by the enterprising director. Getting little response from the central authorities, Nosov turned to the press and sounded the alarm in a series of letters and articles appearing in *Pravda* and the technical journals. At his insistence a number of prospecting parties set out to find a new iron-ore base for Magnitogorsk, but met with little success. One large deposit of poor ore did offer some promise, but to Nosov's exasperation the two Ministries of Metallurgy and Geology were squabbling, each claiming it was the responsibility of the other to carry on further prospecting and development.

In the meantime Nosov took positive steps within his own jurisdiction to alleviate the situation, developing an expensive new system including a sulphide factory for preparing the poor ores. By the end of 1951, 75 per cent of the ore was charged in the form of agglomerate, which made up, temporarily at least, for the necessity of utilizing continually poorer iron ore.[9]

During and after the Second World War, Arthur D. Little, Inc., a Boston research firm, and the Republic Steel Corporation jointly invented a startling new technique known as pressure blowing or high-top-pressure blast-furnace operation. This new method increased productivity 10 to 20 per cent. By cutting down the escape of gas through the furnace top and at the same time increasing the quantity of air blown into the furnace, the reduction processes are intensified, while the consumption of coke and the quantity of iron ore dust blown out the top is reduced. Opinions differ about the economic feasibility of the new process, but there is no doubt that it significantly increases output per furnace and cuts coke consumption per ton of pig iron. During

[9] Clark, *op. cit.*, chap. xiii.

the summer of 1950 I visited steel plants and talked with leading executives of the iron and steel industry in Germany, Great Britain, Luxembourg, France, and Italy without finding a sign of preliminary experimental work or even future plans to try out this new American technique. The Soviet Russians, however, had already been operating one of their biggest furnaces under high pressure and were making plans for its widespread introduction. The shortage of capital for investment and the consequent necessity of maximizing the output of existing equipment has apparently outweighed in Soviet judgment the drawbacks that have slowed down the widespread adoption of high-pressure operation in the United States.[10]

The sharp-eyed Soviet engineers p cked up references to this innovation in American journals as early as 1945 and avidly followed subsequent reports as they appeared. From 1947 through 1948 (when the Russians stopped exporting most technical journals) almost every issue of *Stal'* contained a reference or an abstract or a translation of American reports on high-pressure operations. Soviet writers seemed particularly intrigued with indications that modern furnaces could be converted with a relatively small investment of capital. Nevertheless the central planning authorities put this innovation low on their list of priorities for the Fourth Five-Year Plan. They did say in early 1947 that conversion to high pressure was first scheduled to be effectuated in Furnace No. 1 at Novo Tula, and outlined their plans, but then they did nothing about it. As Nosov put it in one of his letters to the editor of *Pravda,* "From the side of the administration of the Ministry of the Metallurgical Industry and the scientific research institutes there was felt a distinct coolness towards this business."[11] Perhaps the central authorities were wary of the difficult problems involved. The installation and successful operation of high pressure requires a very advanced level of technical competence and equipment.

Such considerations failed to daunt Gregory Nosov. In September 1949 a long letter to the editor of *Pravda* revealed that the engineers in the blast-furnace shop at Magnitogorsk had been trying for three years to convert one of their furnaces to high pressure. The central author-

[10] On Soviet adoption of high pressure see: Bardin and Bannyi, *Chernaia Metallurgiia v Novoi Piatiletke* (Moscow, 1947), p. 81; N. I. Krasavtsev, "Operation of Blast Furnaces Under High Pressure," in section on foreign metallurgical news, *Stal',* 1948, No. 6, pp. 561–63; *Stal',* 1947, No. 2, p. 191, No. 3, p. 280, No. 5, p. 477, 1948, No. 9, pp. 775–87, No. 10, pp. 946–49, No. 12, p. 1142; *Izvestia,* September 8, 1949; *Pravda,* January 31, February 11, March 24, May 11, December 27, 1951, January 5, 31, 1952; *Trud,* March 4, August 10, September 27, October 29, 1950, January 31, February 16, 21, March 2, April 1, 5, 6, 8, 21, 1951.

[11] *Pravda,* November 4, 1949.

ities in Moscow at the Ministry of Iron and Steel, however, would not give the authority to convert, because they were afraid to lose the twenty-five days of production if the necessary changes were made at the end of a furnace campaign. The management of the works itself, on the other hand, hesitated to risk such an undertaking on its own authority, since it would likely fail to meet its production plan for the month that the furnace would be under reconstruction. Apparently, a solution to the impasse was reached when Magnitogorsk utilized every reserve for increasing the pig-iron output in the remaining blast furnaces and made up for the loss entailed in conversion. In the early summer of 1950, No. 6 at Magnitogorsk, one of the world's largest and most modern blast furnaces, of 1,300 cubic meters capacity, was blown in under high top pressure.

During August and September Furnace No. 6 turned out about 100–120 tons a day overplan, and economized on both ore and coke. After several months' experience it was reported in 1951 that, under high pressure, productivity was raised 5 to 7 per cent, coke consumption declined 4 per cent, and flue-dust loss was cut 70 per cent. During the first ten days of February the furnace consumed only 780 kilograms of coke per ton of conversion iron. These results were good enough to justify the conversion of two more furnaces at Magnitogorsk in 1951 (Nos. 3 and 5) and one at Kuznetsk to high-pressure operation. In 1952 it is planned to convert a number of blast-furnace plants to the new method.

In the meantime much smaller furnaces at Serov had been converted, which helped improve their coke blast furnace productivity. The average daily output in metric tons per cubic meter of capacity increased as follows:

	1946	*1948*	*1950*	*1951*
Productivity	0.91	1.20	1.34	1.49

The incredibly high average for 1951 is credited to high pressure. For this performance the director, the blast-furnace superintendent, and two others at the Serov works shared 100,000 rubles and a Stalin Prize.

A Stalin Prize was also given to the operators of Blast Furnace No. 6 at Magnitogorsk. They then became perpetrators of a fraud upon their fellow workmen in other plants, by challenging a number of them to competition in January 1951. With the support of the press this competition became a "movement," but the publicity rarely revealed to the

competitors that the cards were stacked against them, because Blast Furnace No. 6 had been converted to pressure operation.

The table on page 409 shows the average annual productivity of Magnitogorsk blast furnaces for most of the years from the beginning of operations to date. From 1932 through 1937, as the inexperienced personnel learned to use the complicated new apparatus, productivity increased 75 per cent. Then the trend was reversed and in 1938 Magnitogorsk blast furnaces operated less efficiently than they had the year before. Nosov took over as director in January 1940, and in that year brought productivity up again slightly above the 1937 level. In spite of all the difficulties of wartime operation, productivity in 1944 showed 11 per cent increase over 1940.

The marked deterioration in 1945 was due principally to the exhaustion of Magnitogorsk's high-grade ores. Nosov's initiative in solving this problem and his introduction of high-pressure operation were instrumental in improving productivity from 990 kilograms in 1946 to 1290 kilograms per cubic meter of capacity in 1951, an increase of 37 per cent in six years.

Another successful Soviet plant director is Gregory M. Il'in, who has been director of the large "Hammer and Sickle" steel works in Moscow for the past fourteen years. Like Gregory Nosov at Magnitogorsk, Il'in demonstrated initiative in the development and adoption of technical innovations, including intensive, highspeed methods of steelmaking and the smelting in open-hearth furnaces of a number of types of steel needed for munitions during the war, which formerly had been made only in electric furnaces. For his accomplishments, "Three Orders of Lenin and five other orders and medals will glisten on his chest . . ."[12]

Next to high-pressure operation the most spectacular innovation of the iron and steel industry in recent years has been the use of oxygen to intensify the operation of open-hearth furnaces. It has been utilized in this country and western Europe for a number of years, but large-scale adoption has been held back more by the high cost of oxygen than by any other factor. The Soviets have reportedly overcome this big objection to the use of oxygen in metallurgy. Their world-famous physicist, P. L. Kapitsa, invented a revolutionary method of producing cheap oxygen, involving liquefaction of the oxygen in the process. With cheap oxygen thus available from 1945, the Soviet authorities have been

[12] M. Schchelokov, "A Soviet Plant Director," *USSR Information Bulletin*, September 7, 1951, p. 519. G. M. Il'in, "The Hammer and Sickle Works," *Stal'*, 1947, No. 11, pp. 1051–54. See also Granick, "Plant Management," p. 62.

particularly anxious to use it in any process where it might substantially increase productivity.

Because the Hammer and Sickle works, of which Il'in is the director, is located in Moscow close to the most important scientific and technical research institutes, his plant has often been chosen for experimentation and the initial adoption of technical innovations. The fact that the first new oxygen-producing plant was located in Moscow may also have influenced the choice of Il'in's plant for the introduction of

PRODUCTIVITY OF MAGNITOGORSK BLAST FURNACES, 1932–1951

Year	*Productivity*	*Year*	*Productivity*
1932	.565	1944	1.110
1933	.565	1945	.943
1934	.794	1946	.990
1935	.877	1947	1.010
1936	.971	1948	1.090
1937	.990	1949	1.210
1938	.952	1950	1.220
1940	1.000	1951	1.290

The figures represent annual averages of daily output in metric tons per cubic meter of useful furnace capacity. They are the reciprocal of the so-called "coefficient of the use of useful capacity." For precise definitions and further explanations see chapter xix in the forthcoming "Economics of Soviet Steel."

Sources:

1932–'36: S. M. Veingarten, *Economika i Planirovaniia Chernoi Metallurgii SSSR* (Moscow, 1939), p. 352.
1937, '38: *Stal'*, 1947, No. 11, p. 1048.
1940: *Izvestia*, January 20, 1949.
1944: *Stal'*, 1947, No. 11, p. 969.
1945: *Pravda*, February 11, 1951.
1946, '50: *Trud*, December 15, 1951.
1947, '48: *Bolshevik*, 1948, No. 23, p. 28.
1949: *Trud*, August 9, 1949, gives this as the annual plan.
1951: *Izvestia*, August 1, 1951, reports this for the first six months. Nosov died August 7, 1951.

oxygen in open hearths. The initiative in this case was taken, not by the plant director, but by a leading Soviet metallurgist and vice-president of the Academy of Sciences, I. P. Bardin. Nevertheless, for his co-operation, Il'in (in 1949) shared a 150,000-ruble Stalin Prize with Bardin and seven others in the plant and in the Central Scientific Research Institute.[13]

[13] On the adoption of oxygen in open hearths, see also Bardin and Bannyi, *Chernaia Metallurgiia*, p. 157; *Plan. Khoz.*, 1951, No. 6, p. 23; *Stal'*, 1947, No. 9, pp. 807–14, 1948, No. 6, p. 574; *Pravda*, January 5, 1952; *Trud*, April 9, 1949.

The Soviet government has become extremely lavish in its distribution of tax-free Stalin prizes for technical inventions and innovations. Stalin prizes carry stipends varying between fifty and two hundred thousand rubles, or about thirty times the average annual worker's income. By 1949, 327 workers or employees of the iron and steel industry had received these coveted awards, and, in the year 1951, 114 more were awarded to personnel in this branch of the economy.

Not only is every substantial technical and scientific innovation almost certain to be recognized by a Stalin Prize, but the scientists and people responsible for developing and introducing new techniques are the highest paid personnel in Soviet industry. This can be seen in the following list of basic monthly earnings, in rubles, of various categories of workers and executives employed in the iron and steel industry.[14]

Director, Scientific Institute	4800–6000
Senior scientific researcher	2800–3500
Chief engineer, Magnitogorsk Plant	2500–3000
Head of steel shop in large Urals plant	2040–2520
Director, National Administrative Office	1700–2200
Economist in large plant	790–1000
Driver of 2½ ton truck	360– 410
Typist	410– 525
Rural kindergarten teacher	250– 350

Furthermore, the Soviet income tax is negligible by American standards. The Soviet regime maintains low-income taxes precisely because it wants to maximize the incentive of high-money incomes.

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[14] On the number of Stalin prizes, see *USSR Information Bulletin*, February 11, 1952, p. 68, and *Pravda*, December 26, 1949.

The Standard Oil Company (New Jersey)

THE aim of this discussion is to elucidate the evolution of the management concepts, organizational patterns, and policies of the Standard Oil Company (New Jersey).[1] In point of fact, these topics are discussed primarily with reference to the origin and development of the Standard Oil combination under its various legal titles prior to 1911. The policies and practices, both sound and unsound, of the men who administered the Jersey Company in its early years were largely those of the men who created the combination.

I

Relative to the advisability of presenting the early development of Standard Oil policies and procedures in general, it must be remembered that the Standard Oil Company (New Jersey) has played a number of roles since its birth in 1882. Executives of the combination organized it in accordance with a specific provision of the agreement creating the Standard Oil Trust. During its first ten years Jersey Standard acted solely as an operating company engaged chiefly in manufacturing. At the end of that period the Ohio Supreme Court denied the right of the Standard Oil Company (Ohio) to pay dividends or to be subject to the policies of the trustees. Between 1892 and 1899 the administrators of Standard Oil affairs expanded their New Jersey unit into one of their most important manufacturing and marketing agencies and simultaneously made it one of several holding corporations among the leading twenty companies under their direction as a community of interest. In 1899, while retaining operating functions, Jersey Standard became the parent holding company of the combination. This dual role continued after the separation of thirty-three corporations from the parent company in 1911, but since 1927 Standard Oil Company (New Jersey) has served, with the minor exception of marine operations for a short time, only as a holding company.

Inasmuch as the Standard Oil combination was a pioneer in large-scale enterprise in the United States, the policies and practices of John D. Rockefeller and his colleagues well deserve detailed analysis. Those

[1] These generalizations are based upon the forthcoming publication by Ralph W. and Muriel E. Hidy, "The History of the Standard Oil Company (New Jersey), 1882–1911."

men engineered a radical new departure in the administration and operation of industrial activity in this country. The railroad and telegraph industries had engaged in big business before the 1870's, but the oil combination constituted the first successful attempt to organize and operate, on a massive scale, the production and distribution of goods rather than services. Much criticism was directed at Standard Oil executives, sometimes with justification, sometimes without justification. Rockefeller and his associates were open to criticism as managers of a private business which maintained an overwhelming dominance of its industry, but many reactions stemmed from the facts that it was new and that it ran counter both to the interests of some people and to many prevailing American ideals and fixed ideas. Inquiry reveals that Standard Oil men actually created an effective new behavior pattern by merging new concepts with several business practices of long standing.

In common with many other administrators before and since, Standard Oil executives between 1882 and 1911 adhered reasonably closely to a number of managerial concepts, even if all were not clearly visualized or formally stated. Basic to all other ideas was the desire to make profits over a period of years—for the long pull, not the short run. Profits were definitely not without honor in the Standard Oil mansion—26 Broadway. To achieve that goal, managers of the combination early adopted and followed numerous principles of action. Many of these principles were not fully attained and were frequently qualified in practice over time. Even before the dismemberment of Jersey Standard in 1911, many of the basic concepts were modified as a result of changing personnel and of almost innumerable alterations in conditions of operation. Differing stimuli produced differing reactions.

During the early years of the combination, Standard Oil executives endeavored to stabilize the petroleum industry by eliminating as far as possible some, though not all, of the variables in the business. The instrument was a giant horizontal and vertical combination owned in common by a small group of investors. Through excluding some refiners and at first all producing operations, John D. Rockefeller and his associates deliberately stopped short of monopoly, although they possessed overwhelming dominance of the market in the United States and of the export trade in petroleum products. In this fashion Standard Oil managers sought security for themselves, the same elusive and ephemeral goal so earnestly pursued by farmers and others in the twentieth century. The oilmen differed from their later emulators by

relying exclusively upon private action to attain their objective. As subsequent discussion will indicate, changing circumstances induced the managers of the combination to alter the implementation of the basic concept as time passed.

Into the combination Rockefeller and his colleagues carried many of the concepts characteristic of the business mores of the time and previously utilized by them as small businessmen. Among these ideas were the convictions that the owners should manage their own business and that the affairs of the enterprise should be kept secret from competitors—age-old habits of thought. Closely associated with those two expressions of the concept "My business is my own" were the desires to be financially independent at all times and to observe consistently the letter of the law.

Strange as it may seem to believers of Henry Demarest Lloyd and Ida Minerva Tarbell, conformity to the letter of the law constituted a cardinal principle of Standard Oil leadership. To make certain, as far as possible, of that conformity, Rockefeller and his associates retained one of the best corporation lawyers in the United States—S. C. T. Dodd. Both he and his successor utilized a whole battery of assistants in connection with different companies on state and regional issues throughout the years from 1880 to 1911.

All the top executives of the combination believed in the virtues of competition, though they preferred to modify the unrestrained variety. They encouraged individuals and units within the organization to compete with each other as a means of keeping managers and their teams on their toes. For the same reason the members of the Executive Committee accepted willingly a measure of competition with outsiders. The latter were left roughly 15 per cent of the market in the United States in 1881, but many factors aided them in increasing their share of an expanding market about another 10 per cent of the total by 1911. It is noteworthy that not all field managers shared this faith in competition with those in the top echelon; some Standard Oil marketers preferred to annihilate competitors, if possible. All agreed, however, with efficient industrialists everywhere that continuous reduction of unit costs in manufacturing was a major competitive weapon and at least as important an item in the delivered price as getting the best possible transportation rates through bargaining with railroads.

Specialization within the organization and careful attention to the possibilities of new methods were other concepts applied by Standard Oil men. They thought that greater efficiency would ensue if each man

applied all his energy and skill to the function for which he had greatest aptitude and knowledge. Standard Oil leaders insisted upon getting for each task the best possible ideas, skills, and techniques available at the time. The formation of the alliance in 1874–1875 brought together several of the most able and successful businessmen in the American petroleum industry. Some businesses were bought to acquire patents, inventors, and administrators. In some cases Standard Oil executives perfected new techniques by promoting experimentation within the organization, on lubricants for example. In others they borrowed, expanded, and systematized ideas tried out by competitors; Standard Oil men built a network of trunk pipe lines for crude oil after that method of transport was first proved commercially successful by the Columbia Conduit Company and subsequently dramatized by the Tidewater Pipe Company, Limited. When Standard Oil managers were unable to devise a satisfactory process for manufacturing marketable products from sulphur-laden Lima-Indiana crude oil, they hired the leading petroleum chemist of the 1880's—Herman Frasch—to attain their objective. All activities were characterized by as meticulous attention to detail as was ever boasted by Napoleon in the conduct of his campaigns.

To co-ordinate the labors of multitudinous specialists in two-score companies and to maintain a balanced relationship between the functions of producing, purchasing, transporting, storing, manufacturing, and marketing petroleum and its derivatives, Rockefeller and his associates had to adopt some creative managerial concepts. They recognized early that policy formulation for the combination as a whole should be centralized in a specific agency, even if in so large an organization suggestions and recommendations must necessarily come from below. Appreciation of that fact was instrumental in creating the trust. At the same time, many factors encouraged a large measure of individual and corporate autonomy. Among these were general legal requirements, existing contracts with the companies and individuals, performance of functions by different units, ownership of shares in various Standard Oil companies by investors outside the group in the alliance, respect for personal characteristics and abilities of associated executives, and conviction that a man gave his best only when delegated responsibility. In such a complex situation effective management involved a compromise between centralization and decentralization of authority and called for systematic administration based upon the maintenance of continuous checks and controls. In the course of evolving and operating their system, Standard Oil executives had the ideal of working as a team, par-

ticularly of reaching decisions through consultation and agreement.

As in all businesses, the last stage on the road to Standard Oil profits was the market. From the beginning of their united efforts, managers of the combination thought in terms of an expanding market, not a static one, and of a world-wide market, not one limited to the United States. Kerosene was going into practically every major seaport of the world before the alliance was formed. Some firms had specialized in manufacturing export oil prior to joining the alliance and several members of the combination had previously shared in export sales. Thus, the effective operation of all Standard Oil units depended, in the final analysis, upon sales in markets as varied as Siam and the United States, as China and Germany. American oilmen were subject to competition from many local petroleum industries and to regulations by scores of municipal, provincial, and national ruling bodies, not to mention fluctuations in economic conditions in all sections of the globe. A giant market had bred a giant combination in the world's leading national petroleum industry. Small wonder that Standard Oil executives, caught between the erratic flow of oil from the wells of the Appalachians and the equally formidable variations in the vast market for American petroleum products, elected to attempt to co-ordinate and control the functions performed between the two—a concept not unique to Rockefeller and his colleagues, but certainly unique in breadth and size at the time.

II

In the course of implementing their basic concepts, and in response to a variety of stimuli—internal and external—Standard Oil managers from time to time changed the organizational pattern of the combination.

From 1874 to the end of 1881 the combination was an alliance—a community of interest—of 41 owners, including one two-man partnership. The organization was a makeshift, a hodgepodge. Though all Standard Oil properties belonged to the 41 owners, their rights were expressly vested in a mixture of corporations, limited partnership associations, co-partnerships, individual trusteeships, and a special trusteeship of three men with no power of administration. Persons outside the Standard Oil group owned either a minority or majority interest in 27 of the 40 operating units in the alliance. Authority for managing the activities of the constituent elements in the combination was legally

delegated to no man or group of men, though the few dominant owners actually administered many operations. Difficulties lurked in the possibility of death among both the leading executives and the various trustees. Transfers of property and shares were complicated. Order and system seemed imperative for the successful administration of the alliance, in itself a pooling of patents, trade-marks, brands, good will, properties, skills, techniques, brains, and personalities.

At the same time, a mélange of circumstances dictated the retention of separate and distinct companies. Among those factors were the heritage of many companies from the seventies, personal pride of many executives in the firms created by them, outside ownership of shares in many of the affiliated concerns, state and Federal regulatory legislation, tax laws and administration, functional differentiation among the associated companies, and regional and national objectives. Most of these have operated to the same end since 1882. However, ownership by a group of investors of all or part of a large number of companies indicated the desirability of forming and maintaining a holding mechanism.

Though other alternatives were considered, through the efforts of S. C. T. Dodd and H. M. Flagler the agreement for the creation of the Standard Oil Trust was drawn up and signed on January 2, 1882. Among many other items, the document provided for the organization of a Standard Oil Company in New Jersey. The contract also vested control and management in nine trustees, who together owned over half of the certificates in the trust. John D. Rockefeller became president, William Rockefeller vice-president, J. A. Bostwick treasurer, and H. M. Flagler secretary of the Board of Trustees.

In practice, neither the president alone nor all the four officers managed the Standard Oil combination. From the beginning, administration depended upon daily consultation and agreement by almost two-score executives. Members of the Board of Trustees did far more than merely ratify the decisions of the officers at occasional meetings. Everybody in the top echelon labored and was aided by daily advice from the second rank of executives. The instrument was a series of committees.

As provided in the bylaws of the trust, the trustees formed an executive committee. At first it included eight of their own number. Later, the committee often embraced men not within the select circle of trustees; for example, from 1888 to his death in 1898 James McGee, an expert on sales for export, was a member of the group. John D. Rockefeller's most arduous task was to preside over the daily meetings

of the Executive Committee, while attending members listened to suggestions from their colleagues, and then argued and compromised on courses of action for the benefit of the stockholders in the Standard Oil combination—for "the general interest," to use their own phrase of 1882. This phrase is still in current use in Jersey Standard.

By 1886 a galaxy of committees, enjoying full advisory and a measure of administrative powers, had grown up on the level just below the Executive Committee. The names of the seven major advisory units at that time reveal their functions—transportation, manufacturing, lubricating oil, cooperage, case and can, export trade, and domestic trade. A production committee reported to John D. Archbold after the Executive Committee decided to embark on producing crude oil. As different problems arose and new functions assumed importance, new committees were created to make investigations and recommendations—on salary schedules, ship construction and operation, and labor disputes, to give three examples.

This system of management by consultation and of working top managers, who were the directors of Jersey Standard from 1899 onward, has continued to the present day, not only in the New Jersey corporation but also in other former members of the Standard Oil family. Between 1899 and 1911 some of the directors were inactive, but all the active ones worked diligently. In the history of the Jersey Company the committee system appears to have been less important between 1911 and 1927 than before or since. So much have committees proliferated within the parent company and affiliates during recent years that executives sometimes regard themselves as working members of a perpetual debating society. Co-ordination of committees and departments is an imperative recognized by management, as the recent articles in *Fortune* on Jersey Standard and its associated corporations point out.

The reasons for the emergence of management by consultation through the committee system were simple, indeed. No one man, nor any one family, ever owned a majority of the stock in the combination. Hence, no individual was able at any time to assert control arbitrarily. The owner of the largest block of stock, John D. Rockefeller, never believed in dictatorial methods of management. He consistently adhered to a policy of consultation, first with his brother William, then with H. M. Flagler, and by 1872 with J. A. Bostwick, O. H. Payne, and Benjamin Brewster in addition.

Within another three years necessity supplemented inclination in the adoption of consultation and team play in the administration of the

Standard Oil alliance. All the leading figures among the top managers came into the combination on the basis of equality, like the states into the Federal union. Before entry into the alliance, such men as W. G. Warden, J. J. Vandergrift, Charles Lockhart, Charles Pratt, H. H. Rogers, and John D. Archbold were strong and vigorous men in their own right. These members in the top echelon of management, not to mention more than a score of former independent businessmen in the second rank of Standard Oil executives, were the epitome of rugged individualism. Nobody impinged upon their independence of judgment and, to be certain of maximum effectiveness in performance of duties, no manager dared ignore their personal feelings.

Recognition of these facts often led to extreme caution in consultation. "I have conferred with all the parties that are, as I think, likely to have opinions or feelings upon this subject," wrote one man to his colleagues on the Cooperage Committee, "and the recommendations that I make are satisfactory to them." [2] In a similar spirit, all letters from top managers to subordinates "suggested" or "recommended," never "ordered," a practice still followed by directors of Jersey Standard.

Assurance that the decisions of the committees would be implemented by operating companies was achieved at first in many instances by selecting directors and officers of corporations from the executive and advisory units. As chairman of the Executive Committee, John D. Rockefeller could feel reasonably sure that John D. Rockefeller, president of Ohio Standard, would carry out any recommendations of the policy-forming group. The same might be said for H. M. Flagler, the first president of the Jersey Company.

In practice there were limits to the control exercised under the system of identical top committeemen and officers of affiliated companies. At 26 Broadway the executive committeemen and their associates laid down general policy, leaving the vice-presidents and general managers of operating companies to carry out the ideas for "the general interest" as they saw fit. In describing the qualities of the man desired to take charge of Kentucky Standard's marketing activities south of the Ohio River in 1886, W. P. Thompson expressed to John D. Rockefeller both the ideal and the reason for it: "He should be big enough to run the entire business subject only to general advice on general policy. It is too big and complicated to be run at arms length." [3] A year earlier Rocke-

[2] Socony Paint Products Company Records, Memorandum of G. H. Hopper enclosed in letter of T. H. Wheeler to the Executive Committee, February 20, 1885.

[3] Rockefeller Records, W. P. Thompson to J. D. Rockefeller, October 19, 1886.

feller had stated broadly another reason for the granting of autonomy to Thompson regarding operations of Ohio Standard and simultaneously sounded a warning as to the extent of independent behavior: "You gentlemen on the ground can judge better than we about this matter, but let us not drift into arrangements where we cannot control the policy." [4]

In the early days of the Standard Oil Trust there were noteworthy examples that control did not ensue from identity of committeemen with directors of affiliates. Men from the top echelons of managers exercised no more than slight influence as directors of the Vacuum Oil Company and the Galena Oil Works, to give but two of several possible illustrations. Management of those two companies rested almost exclusively with C. M. Everest and Charles Miller, respectively, as long as they remained in the Standard Oil family. Such examples of divorcing operations of subsidiaries from policy making for "the general interest" may be regarded as "the wave of the future" finally recognized in the 1930's.

Over the nine years from 1924 to 1933 top-level policy formulation was gradually separated from operations. In the reorganization of 1927, in itself a product of three years' study, some directors of Jersey Standard were directors and officers of affiliates. Six years later top managers decided that the best plan was to separate more effectively operations and formulation of top policy. Hence, since that time, directors of the parent company have not held office in affiliates, although every member of the Big Board has the responsibility of maintaining continuous contact with certain corporations and functions. In this fashion Jersey Standard directors strive to effect a workable compromise between centralization and decentralization—between consideration of decisions for the entire family of affiliates and the autonomous operation of each associated unit.

III

Operating policies, the tactical measures of top strategists, had to be altered more often than basic concepts. Rockefeller and his associates adjusted their policies of producing crude oil, storing, transporting, manufacturing, and marketing to innumerable circumstances and pressures, including those from outside suppliers of crude petroleum, con-

[4] Rockefeller Records, J. D. Rockefeller to W. P. Thompson, November 5, 1885.

sumers, competitors in the oil industry at home and abroad, and competition from coal producers, manufacturers of artificial gas, and the burgeoning electrical industry.

In order to assure a steady flow of crude oil to refineries, which necessitated having a price which would encourage producers to keep active and at the same time enable Standard Oil manufacturers to make a profit on finished goods, top managers worked out a complex of interrelated gathering, transporting, storing, and purchasing techniques in the early 1880's. They left the production of crude oil to outsiders. Standard Oil pipe-line units ran gathering lines to the storage tanks of almost every well, provided storage facilities for all oil run from field tanks, and gave a negotiable certificate for each 1,000 barrels received and stored. The Joseph Seep Purchasing Agency, an adjunct of Standard Oil's National Transit Company, did practically all the purchasing in the field for the combination. Seep's purchasing price, for any given day, was the closing price for oil certificates on the oil exchanges. Standard Oil men built a trunk pipe-line system between 1879 and 1885 to carry their purchased crude oil to all their refineries. Rebates on shipments of raw petroleum by railroads were a thing of the past to Standard Oil refiners in Pittsburgh by 1877, in Cleveland and Olean by 1880, in Bayonne and Brooklyn by 1881, in Buffalo by 1882, in Philadelphia and Baltimore by 1883, and in Parkersburg by 1885.

Within a few years changing conditions forced a radical modification of the foregoing pattern of operations. The Standard Oil combination went into large-scale production of crude petroleum in 1889, although it provided for only a portion of its needs in this way. In terms of its share in the amount of crude oil produced in the United States, Standard Oil reached its peak in 1898 with approximately 33 per cent, after which there was a marked decline. In 1895 Standard Oil purchasers officially adopted the policy of buying according to posted prices, a practice still in use today. The use of certificates practically ceased at that time. Centralized purchasing had been modified in the late eighties as the Lima-Indiana producing area developed. Pipe lines ultimately became the chief Standard Oil purchasing agents in that area and others. The oil was bought at posted prices as it entered the pipes, or shortly thereafter, in Illinois, Kansas, Oklahoma, Texas, and Louisiana, but Jersey Standard's affiliate in California made purchases from producers on one- to three-year contracts. In these newer producing regions Standard Oil units utilized their own storage tanks for

their own oil, thus ceasing to be bankers of oil owned by others, as they had earlier in the Appalachians.

The drive to reduce the unit costs of manufacturing—a basic urge of Standard Oil managers inherited from their days of relatively unrestricted competition—resulted in a policy of mass production. The process was gradual and embraced a number of simultaneously conducted operations. Rockefeller and his team eliminated submarginal units, expanded or erected large, strategically located refineries, and manufactured a complete range of finished products in accordance with changes in demand. They attempted to assure uniformity in quality by means of inspection both at each plant and in a centralized laboratory and to improve quality through ceaseless experimentation, particularly on lubricants. They engaged in at least ten auxiliary fabricating activities: they made their own acid, glue, cases, cans, both wooden and steel barrels, tank cars, tank wagons, wicks, paint, and pumps. They utilized the assembly-line technique in fabricating and filling cans and cases as early as the 1870's. Over the years prior to 1911 Standard Oil refiners devised or adopted scores of improvements in the technology of manufacturing operations, the outstanding changes in refining being the utilization of continuous distillation and of selective condensation by means of towers invented by J. W. Van Dyke of the Atlantic Refining Company.

Even more slowly than in the case of mass manufacturing, Standard Oil executives carried out a policy of mass distribution of petroleum products. At the time that Jersey Standard was born, the change was in process. Standard Oil refiners sold many types of lubricating oils and gasolines direct to industrial consumers, a practice continued for those items, for fuel oil to factories and railroads, and for gas oil to manufacturers of artificial gas. Prior to 1881, various components of the combination, including the Standard Oil Company (Ohio), had either erected or purchased some wholesaling facilities in the form of 130 bulk stations from which retailers were supplied kerosene in barrels. Over the years other units of the organization gradually assumed the wholesale and jobbing function in marketing kerosene, gasoline, and packaged lubricants. They also substituted delivery of kerosene and gasoline to retailers by tank wagon for distribution in barrels for over 70 per cent of the volume by 1911. The pattern of bulk stations and tank wagon delivery was continued but later improved by the motorization of the wagon.

Achieving mass marketing embraced a host of procedures beyond

the assumption and systematic organization of the wholesaling function. Among corollary activities were greater efforts to expand sales of by-products (lubricants, gas oil, fuel oil, gasoline, and paraffin wax), the use of inherited and new brand names and trade-marks, and buying out rather than fighting out competitors. Other methods included increased use of packaging and a gradual expansion of advertising. Three techniques of Standard Oil marketers, though not unique to their operations, elicited widespread criticism and legal action—making arrangements for the lowest possible railroad transport costs allowed by the letter of the law, watching the activities of competitors and compiling statistics on sales, and utilizing hidden companies, a practice which they discontinued in 1904 in the United States.

As to price policy, instead of always "cutting to kill" as Miss Tarbell inferred, the combination usually, though not always, was "last down and first up." This normal behavior of the leader was accompanied by variations in price levels according to the remoteness of areas and volume of sales. An observing competitor, T. B. Westgate, testified in 1899: "If I sell a limited amount of oil, very limited, say a tenth of the consumption in Syracuse, there are nine chances in ten that the prices will not be cut [by Standard Oil]. But it is different if I attempt to get one-third or one-half of the trade, as I did have in Auburn." [5] Throughout the years to 1911 Standard Oil units actually maintained a price umbrella, though a relatively low one, which, in conjunction with the development of new producing areas, resulted in a slow, steady growth of competition and a decline in the combination's share of the market, a trend quite noticeable before 1911.

In export trade Standard Oil executives gradually adapted their American techniques to foreign markets. When Jersey Standard was created, the combination's products going abroad were sold to outside exporters or to local representatives of foreign merchants. In order to expand foreign sales and to hold markets against foreign competition led by the Nobels and the Rothschilds, Standard Oil men began to organize their own marketing outlets in Europe in 1888 and to establish their own bulk stations in the Far East five years later. As Royal Dutch and the Shell Transport and Trading Company rose to strong competitive positions during the late nineties, Standard Oil sought producing properties abroad with a view to establishing integrated operations on a regional or national basis. Aided by govern-

[5] *Industrial Commission, Preliminary Report on Trusts and Industrial Combinations* (Washington, D. C., 1900), I, 367.

ments, competitors succeeded in barring Standard Oil from production in the Netherlands East Indies and Burma. The creation of an integrated enterprise in Japan (1900–1907) proved a financial failure. In Rumania and Canada integrated businesses succeeded on a small scale and stayed in the Jersey Standard fold after 1911. Henry Clay Pierce through Standard Oil's Missouri affiliate, the Waters-Pierce Oil Company, also developed producing, manufacturing, and marketing operations in Mexico, but that connection was lost to the Jersey Company through separation in 1911. National customs, mores, regulations, legislation, and administration caused the establishment of a remarkably varied pattern in Standard Oil operations abroad and the variety persists in a large measure even today.

Expansion of all Standard Oil operations after 1881 was financed within the combination. Rockefeller and his associates resorted to banks for a few short-term loans in the early 1880's, but by the latter half of that decade the organization had surplus funds to put into the call-loan market. Funds for expansion came out of earnings, in relation to which dividends were kept low. Since expenditures of $5,000 or more were referred to the Executive Committee for approval, the flow of funds and the early development of accounting and auditing made for a planned growth of the Standard Oil combination.

Probably the greatest error in the financial policy and public relations of Jersey Standard between 1899 and 1911 was the failure to change the capitalization as earnings were plowed back and net worth of the business rose. Both earnings and dividends thereby appeared to be excessively high in relation to outstanding capital stock, a point seized upon by counsel for the Federal Government in the dissolution suit and weighted heavily by the judges in rendering their decision to break up the combination.

This essay is consciously an extremely general analysis of the evolution of the managerial concepts, organizational patterns, and operating policies of the Standard Oil Company (New Jersey) and its parent, the Standard Oil Trust. Substantiation of all points and a portrayal of additional policies—on employee relations and public relations, to cite two examples—may be found in the forthcoming volume on the history of Jersey Standard from 1882 to 1911. Frictions in working out policies and mistakes in decisions also receive attention. Developments and modification of early practices may be followed in the second and third volumes of the series. It is hoped that enough data have been presented herein to suggest that, although many of the contributions of Standard

Oil men to the almost innumerable techniques of large-scale petroleum enterprise in the United States were obviously not unique, the success with which they created and systematically managed an integrated business catering to a world market was revolutionary in scope and in long-term socioeconomic significance. Privately, the executives of the combination regarded themselves, to quote from one of their letters in 1889, as builders of "the greatest commercial organization of modern times." [6]

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[6] Rockefeller Records, W. P. Thompson to J. D. Rockefeller, June 14, 1889.

Economic Implications

I

THE policies of the Standard Oil Company (New Jersey) are headline news. The fact that Standard's policies are not spoken of as "public" policies is little more than an accident of terminology; certainly they are public in their sweep and import, and certainly in their impact upon the public mind. The policies and actions of Standard (New Jersey) are not alone in these respects. Standard is a giant corporation; there are other giant corporations and there are more in the making.

I shall deal with Standard only by including it within the group of giant corporations of which it is an outstanding representative, and about the implications of whose presence and policies I am writing.

The giant corporation has been present in our economy for some time but, relative to the period during which our economic theory and our theories of political economy have developed, it is a newcomer. As a current phenomenon it is sufficiently impressive to challenge these theories dramatically at many points, but as a slow development, persistent but not spectacular in its rate of growth, it tends to soothe our inquisitive and combative instincts. The giant corporation is probably something that somebody should do something about, but no one moment seems more uniquely propitious than any other for inquiry or action.

The first challenge to our traditional thinking comes in the realization that the policies and acts of a single business unit can have identifiable and significant effects and hence implications. When a giant corporation (Standard, for example) makes a decision on price, output, extent and direction of investment, dividend payment, or wages, governments and investors and laborers and consumers (and not only Standard investors, laborers, and consumers) are concerned because their interests are noticeably affected. The economic decisions of Standard are not merged and lost in the anonymity of the impersonal market of traditional economic theory. Traditional logic denies to individual firms the making of policies that can be identified and felt. When Standard acts, it is known—and it is felt.

There is independent evidence to support what otherwise might be suspected of being mere suspicion in this regard. The managements

of our giant corporations are today frequently advised by our "business statesmen" to become, themselves, business statesmen, and to recognize their public and social responsibilities in conducting their corporate affairs. Government agencies frequently urge giant corporations to follow public lines which run counter to, or at least are not dictated by, their corporate economic interests. Such advice and pleas, if known to traditional theory, would have been counted the rankest heresy.

Still another straw lies in such institutions as the Jersey Roundtable, where, as in the case of other giant corporations, Standard Oil (New Jersey) consults over a period of days with a panel of educators—explaining policies and soliciting comments and advice. These gatherings have sometimes been interpreted as attempts to buy public opinion with cheap (tax-rescued) dollars, or to "sell the Corporation's policy." Having, myself, been "bought," I prefer a different or, possibly, an additional explanation: these gatherings represent soul searching, not necessarily too vigorous a search into too troubled a soul, but soul searching, none the less, by managements which have opened their eyes in the middle of the twentieth century and found themselves in possession of greater resources and power than any businessmen have ever before enjoyed or even dared to dream of enjoying—and are mightily concerned about what to do next. Assuming even a modicum of sincerity on their part and ours, how else can we explain the admission as well as the apprehension in the query raised by the management of a giant firm operating in the very center of what is ostensibly a "free enterprise" economy: "What is our public responsibility?" and our own response? The response called for by traditional theory is simple: "Make as much profit as you can; the market will take care of the public," to which might have been added, "If you don't, you will be fired by your owners!" Instead of this, our response today is, "We'll make some studies and let you know."

The giant corporation raises problems of economic theory and of political economy revolving about its internal organization and processes—problems which we epitomize in the phrase "the separation of ownership and control"—and about its external relationships, which we express as "control of the market." These two sets of problems are sometimes confused in scholarly analysis as well as in public discussion. They are interrelated, and together they are capable of producing a single effects. They do not necessarily work together, however, and they joint effect substantially greater than the simple sum of their respective should be carefully distinguished.

In the remainder of this paper I shall undertake to set forth some of the implications that flow from the features that characterize the giant corporation. I shall of necessity paint with a broad brush, and the argument will cut along main lines. Not all propositions will apply equally to all, and not specifically to any one giant corporation. Above all, let me make it clear that I am not attempting to present a picture of the organization and processes of Standard Oil (New Jersey). I believe, however, that a picture of the giant corporation—of which Standard is an example—will emerge.

II

The giant corporation obtains its fixed capital by investment and by reinvested earnings from its stockholders, and by investment from holders of bonds. The stockholders are its owners. The basic policies of the corporation, as well as its day-to-day conduct are determined by its management. The management is, on paper, chosen by the owners, and basic decisions on policy also lie, on paper, in the owners' hands. In fact, however, the management is virtually a self-perpetuating group, and the making of basic policy decisions is one of its major tasks.

We are apt to think of management as consisting of the elected directors and the officers whom they appoint. If we are seeking the focal point of decision making, however, we will center upon the men who in fact occupy the position of leadership in the corporation—whose word is *law*—who select the board and the officers, including themselves, and who, whether by edict or suggestion, set and reset the course of the corporation and determine its conduct in as great detail as they see fit. Top management in the giant corporation not only "runs" the corporation, it places and keeps itself in the position of top management and determines, as well, the terms of its own employment and its own compensation.

I am suggesting nothing sinister in this recital; the position of top management in the giant corporation is inherent in the nature of the institution of which it is a part. Management can—again, on paper—be unseated by an aroused ownership, but the task of bringing this about through a fight for proxies involves such an immense and risky expenditure of time and money that nothing less than notoriously scandalous action by the management is likely to prompt the attempt.

In traditional theory, profit goes to the owner for the performance

of two tasks essential to the functioning of the economy: bearing the residual risks of business ownership and making the ultimate decisions which owners are required to make if business enterprise is to be undertaken. It is argued, of late, that the advent of the giant corporation has split these ownership and entrepreneurial functions—that while the owners still bear the risks of ownership, the function of decision making has been handed over to management. Profit, however, still goes to the owners—the stockholders—and it is contended, therefore, that the giant corporation requires us to recognize and to correct the inadequacy of, or confusion in, the traditional theory of profit.

It is my own conviction that the giant corporation, by the very specialization which its size forces upon its operation, reveals most clearly the exact nature and limits of the functions peculiar to the several factors combined in its operation; and that the revelation discloses no reason to revise our theories of entrepreneurship and profit.

Theory at this point requires a sharp distinction between the functions of owners and the labor functions of management. The owner (whether as a single proprietor, a partner, or a stockholder) bears the risk of loss which derives from the production and sale of goods or services for an uncertain market. The risk that he bears differs in kind, not alone or necessarily in degree, from that borne by any other factor in the productive process. It is a risk which not only must be borne because it is inherent in the very nature of production for an uncertain market, but which derives of necessity from the owner's performance of his second peculiar function—the making of his original decision to furnish capital (or valuable goods or services) to business enterprise as an owner. This decision—this ultimate decision which must be made before production can proceed in any economic system and irrespective of the form of business organization—is the only decision for which the owner as owner is responsible. Every other decision—I repeat, every other decision—can be made by someone hired by the owner, for a wage. The making of every other decision, therefore, whether it is made by the same person who is an owner or by someone he selects, or by someone in whose selection he acquiesces explicitly or tacitly, is a labor function, not an ownership function. Every decision made by a corporate management whether the corporation is small or large is made in the performance of a labor function. It is a hired decision, even though the "hiring" was done remotely and only implicitly by the owner by his very act of making the decision to become an owner. I suggest that in the giant corporation, with tens

or hundreds of thousands of stockholders, the holders of the ownership stock as a group perform every function which as an owner any one of them would perform as the sole owner of a single proprietorship. It is, of course, true that in the giant corporation the many owners share with each other the performance of their ownership function. This results, however, from the fact of association, and not (except for degree) from the presence of the giant corporation; it is equally true, in a lesser degree, in a two-man partnership. So far as the remunerative aspect is concerned, the giant corporation does not compel us to revise our traditional theory of the routing of profit; profit is still a prospective reward for the performance of the traditional functions of ownership per se.

But what shall we say of the remuneration of management—the reward for the giant corporation's hard-worked leadership, whose acts and decisions bear very substantially upon the flow and volume of profit going to the owners? How is management's compensation determined, and what relation does it bear to management's performance of its labor function?

The remuneration going to management for the performance of the tasks of management is a labor share—a wage. It is an amount, named by contract between management acting on one side of the table for the owners and, on the other side, for itself as a hired factor of production. The dual capacity in which management acts in determining its own wage is matched by the dual capacity in which it acts in determining the other terms of its continuing employment, including, indeed, the very fact of its employment. It is a matter of record that persons who occupy positions of top management are typically not heavy stockholders, and hence receive only a slight proportion of their corporate compensation from stock ownership.

A significant feature of management's wage contract is that within wide limits the amount of the wage does not depend upon the amount or flow of corporate profit. It may, of course, be the case, although it is neither necessarily or universally so, that management arranges for itself to receive a bonus varying (within limits set by the management) with current profits. If so, the bonus represents, on the assumption that it is an economically legitimate payment, a profit return to a management which has "invested" part of its labor service in the enterprise in lieu of selling that labor service to this or to another enterprise at the full going explicit wage. That is, the position of such a management, with reference to part of its service and part of its compensation,

is analogous to that of the single proprietor of a small store who also works in the store.

But what is to be said in this situation of traditional economic theory which sets up economic gain as the guide and motivating reward for economic conduct? If the owners were managers and thus made the management decisions, we might expect them to pursue profits for the enterprise and perforce for themselves with all the vigor and skill at their command. But why should we expect such conduct from corporate management whose employment and compensation do not depend directly upon the volume or flow of corporate profit?

And what, indeed, are we to say of traditional theory when we find —as I am very sure we would find—that management in the giant corporation in fact does recognize and adopt profit for the enterprise as its guide for action, and does in fact pursue profit for the enterprise with its full skill and as vigorously as though its employment and its own compensation were directly at stake? The giant corporation, characterized of necessity by a "free-wheeling" management, displays for all who care to attend the phenomenon of profit as a guide to the making of economic decisions by persons who do not stand to gain directly or proportionately or at all precisely by such decisions, and for whom, consequently, profit or "economic gain" cannot properly be regarded as more than one among many motivating forces.

Two comments seem to me to be in order. First, I do not regard the managements of giant corporations as peculiar in the catholicity of their motives. I strongly suspect that throughout our economy, in the performance of all kinds of economic functions in all kinds of situations, men are induced or driven to act by many considerations and motives other than profit and loss—by the desire for approbation and prestige, by social consciousness and personal ethics, by emulation and habit, by the "rules of the game" and the "old college try," and so on and on. Just as in our attempt above to set the exact limits of the ownership function, however, we find that the giant corporation displays economic processes in such detail that it illuminates clearly the nature of processes which the compactness of smaller units and other forms of organization tends to obscure.

Second, if we have read correctly from the text of the giant corporation that men will work hard and conscientiously in their management of large-scale, far-flung enterprises, even though they are not induced or forced to do so by the sole or even main consideration of personal direct economic gain or loss, the lesson has interesting implications

for the operation of systems and forms of economic organization other than free-enterprise capitalism and the private corporation.

The giant corporation, with its operational separation of owners from those who make the policy and operating decisions—a separation which places the management virtually on both sides of the table in its dealings with stockholders—raises the public-policy question of protection for the stockholder from a greedy or corrupt management. The question here—not whether the management follows vigorously a cost-price calculus in making its business decisions but whether it plays fairly with the stockholder in routing profit—is clearly a "public" issue. More is at stake than a simple abuse of one private person by another. The corporation is, after all, a type of organization sanctioned by public law for the achievement of identifiable public economic purposes. If, because of misuse, it does not accomplish those purposes and, if the misuse cannot be corrected, the question of public justification for the continued existence of the corporate device is directly raised. Failure of management to deal fairly and economically with owners will result immediately in a loss to owners, but, of greater public consequence, it will result, in time, in the drying up of the sources of ownership capital, to the detriment of the economy and the public. I may add that such a result, either actual or as a possibility, affords no independent protection to an existing stockholder even in the case of an individual corporation. It will not deter the unscrupulous or the indifferent, and, if a management should in fact give it heed, it would be, as suggested above, as a guide and not as a sanction.

The great difficulty in dealing with this problem lies in defining and giving concrete substance to such terms as "misuse" and "abuse" and the like. We find ourselves here in the realm of necessary business discretion and judgment; and it is possible to employ only broad measures, and these only in extreme cases. The common law here is a blunt instrument, to be used rarely and only as a last resort; courts are not expert in the intricacies of business and finance, and they have a great disinclination to meddle. The statutory law of corporations can provide definite protection for stockholders, but only at the cost of desirable flexibility in the conduct of corporate operations. May I suggest that the requirement of full disclosure of corporate affairs through the kind of publicity which now is required of public agencies which transact public business would be a proper and a promising step? In this connection, it is worth noting that such remedies as cumulative voting and proxy reforms hold promise primarily as disclosive devices. The busi-

ness of the giant corporation is *public business;* the notion that it must be (or is in fact) kept secret in order to enhance the maneuverability of the corporation in its struggle against competitors is largely a myth. Beyond disclosure, the growth of a sound and responsible "ethics of management"—a growth encouraged by public and business opinion, and helped on its way by the occasional use of punitive measures in appropriate cases—seems to offer to the stockholder and the public the best chance for security and protection compatible with efficiency and progress.

III

The giant corporation presents the public (as distinct from the economic theorist) with major problems other than those grounded in the inherent separation of owners and management, problems stemming from its relations with consumers and labor, and from the impact of its investment, production, and marketing policies on the total economy and even on international political relations.

Under the traditional logic and rationale of free enterprise, the interests of the consuming public *vis à vis* the sellers of goods and services are served and protected by the impersonal processes of the free competitive market. The appearance of the giant corporation raises serious doubts about the efficacy of the market mechanism for the performance of this essential task. Stated simply, the issue is whether the presence in the market of the giant corporation leaves enough natural, self-generating, and unchecked (and uncheckable) drive in market competition so that it can carry out the compelling, coercive regulatory task which the logic of free enterprise places squarely and solely on its shoulders. Is the giant corporation forced by competition to render maximum service to the public in order to gain maximum earnings?

The fact that we decree effective competition as a public goal and that we reinforce our decree by the institution of antitrust laws and actions is significant, but it is by no means a final or even a decisive step. A major task still before us is to determine whether "bigness" and effective competition are compatible. On this issue, sixty-two years after the passage of the Sherman law, we are still engaged in the amusing task of defining our terms and organizing our research. Next to flying saucers, these terms and their import constitute our most baffling current mystery. If we should some day decide that bigness and effective competition cannot abide happily together in the same market (and

I may interject that our unwillingness so far to decide that they cannot constitutes a continuing operating decision that they can), our second and even more difficult task will be to decide what to do about it. This issue will involve us in still another: whether bigness which is incompatible with effective competition is nonetheless necessary (or, what is more important, is generally *thought* to be necessary) for the attainment of desired productive efficiency.

I will not undertake to pronounce finally on these matters at this time, but in the interest of clarity I must remind you that the issues are not whether big business in fact behaves properly or misbehaves, and whether big business and big businessmen are "bad" in any moral sense. Our real concern is whether big business must behave properly, that is, whether it is compelled to act in an economic manner in order to survive and to achieve maximum economic gain in the competitive struggle. In this connection the display by the giant corporation of competitive exercises is not the test; the question is whether the giant corporation is forced to compete. A giant firm which as a matter of policy "deliberately stops short of monopoly" is not in my judgment controlled by competition. To establish that competition is "workable" and really working, it is necessary to show that it is *competition that is doing the work of compelling acceptable corporate performance.*

Also, while it seems useful in carrying out our antitrust inquiries to employ the prosecuting techniques of the criminal law, we should remind ourselves frequently that our underlying task here is not to set the limits of "guilt" and "innocence" in the conventional moral sense; it is, rather, to make up our minds about the kind of organizing and regulating forces that we want our economy to embrace. Our basic job is one of economic architecture and construction, not of detection, berating, and punishment.

What of the giant corporation and labor? At the moment we probably do not need to dedicate ourselves to sleepless anxiety over the repressive power of big industrial units over those who labor for them. As of the present "full-employment" date, giant organized labor seems fully capable of holding its own with giant business. We need not pause here to ask whether giant business might have been held in check by competition with other buyers in the labor market, even if organization of labor on the present scale had not occurred. Giant labor is here—in some measure as a traceable result of the coming of big business—and it presents us with an array of problems centered around considerations very similar to, although with significant dif-

ferences from, those raised by the giant corporation. Giant labor and giant business respectively can probably be counted on to protect themselves satisfactorily from each other, although the processes by which each achieves its protection may involve both of them and the rest of the economy in some unpleasant moments. What is even less pleasant to contemplate, however, is that if, instead of checking each other, they should choose to join hands and dance around the pay bowl, the unpleasantness could become really severe and the moments could lengthen into years.

In recent times, economists and those politicians who hang on their words have been making much of the relation of business decisions to the achievement and maintenance of over-all full employment in the economy. Full employment, we may assume, is in general an eminently desirable and desired state of economic affairs. The subjects of business decisions—investment, prices, wages, output—are the very stuff of which "business activity" and "employment" are made. We have recognized for some time that economic stabilization at a high level of employment is not likely to emerge automatically from the impersonal working even of perfect market forces. More recently we have come to appreciate that, with giant corporations as major participants in the economic free-for-all, market processes are neither impersonal nor automatic, and are certainly not perfect; and that a single "yes" or "no" by a single giant can have a very great effect on the functioning of the entire economy. This represents a lot of power over a lot of people to be exercised, however benevolently, by the single "free-wheeling" management of a single "free-wheeling" corporation. This phenomenon presents an even more serious aspect when it is realized that such a decision by a giant corporation—to invest or not to invest, for example—is taken without purposive co-ordination with decisions being currently made elsewhere in the economy on closely related matters, without necessary knowledge of its broader effect on the economy, without any but self-assumed responsibility for that effect, and by persons who, if they are conscientious, are bound to feel responsibility to owners whose proper interests may well run quite counter to the public interest. The government, whose over-all positive responsibility for full employment is now completely accepted by both of our major political parties, looks on as a palpitating witness.

I shall simply note in passing that giant corporations, acting almost with the power of independent states, may follow courses in the development and management of their economic interests in foreign lands

which are capable of producing serious and far-reaching effects and involvements for our government and ourselves. We may debate whether the giant corporation is, in its foreign dealings, a charge, an instrument, a partner, or a rival of our government, but to the nationals of Asia or Latin America there is no question—the big American corporation is *the United States.*

IV

Giant corporations are quite new to economic theory, as they are to our economic life. In the light of our traditional theory, we might expect their economic activities not only to be guided by, but to be rather closely determined, indeed, almost compelled, by the automatic, competitive market forces on which we like to believe we rely to regulate the conduct of our economic affairs. My personal conviction that giant corporations and their managements operate in a large measure outside of, and independently from, such constraints and compulsions is strengthened, as I have suggested above, by such phenomena as exhortations by "enlightened" business leaders to their fellows to save free enterprise by exercising social responsibility, and by the introspective self-questioning being indulged in by the more self-conscious of our contemporary giants. My conviction grows stronger as I note the demonstrated ability of certain of our giants to hold prices against the full flood of the market, and as I listen to sophisticated rationalizations of the "inherent" dampening effect of the large corporation on competition. Economic progress, it appears, calls for just the proper blend of free competition and market control—a formula of something like 3.6 of the former (for drive) to 1.0 of the latter (for security), stirred, not shaken. By a strange but happy coincidence this exact blend is afforded by the giant corporation. The frequent insistence, too, that there are other pockets of monopoly more menacing than that represented by big business, while intended to soothe, in effect confirms.

The giant corporation in 1952 is by no means wholly free from competition—certainly not from the potential competition represented by product and technological innovation. I believe, however, that the giant corporation is in a position to operate within much wider limits of discretion than is compatible with the concept of competition as the regulator of the economy. Let me put it that, in the case of the giant corporation, competition is more controlled than controlling; it is "captive" competition.

I do not believe that acceptance by managements of giant corporations of a philosophy of social responsibility will come to be the answer to the need of our economic system for a regulatory force. We will not oppose or make light of any "conversions"—we shall always be happy to have our trains on time—but the weakness of such a philosophy as the organizing, regulatory mechanism of an economic system is basic, as I suggested above in discussing the relation of the giant corporation to the problem of full employment. We certainly will not accept privately felt social responsibility as our prime coercive and organizing agency without setting up standards to measure its performances. The establishment of standards which must be met "or else" is closely akin to public regulation. It probably goes without saying that "social responsibility" has no place in the logic of "free-enterprise capitalism."

Nor do I believe that the answer is to be found in "countervailing power" (that is, the active restraint on the power of strong sellers provided in the modern market, not by competitors but from the other side of the market by strong buyers) of which we have recently been made aware.[1] Countervailing power is a good thing to have hanging over the fireplace; it makes less ominous the threat of monopolistic misconduct. But it is too sporadic and unpredictable in its appearance, too limited in its scope and too uneven in its drive to be relied upon as our principal defense against extortion, or as the economy's principal organizing and innovating force.

I do not decry—indeed, I favor strongly—the efforts currently being made in academic and government circles directed toward the sharpening and energizing of our Federal laws requiring that competition be present and active, but I doubt whether in the long run the antitrust laws will prove to have furnished us with more than a kind of rearguard protection during a period of transition. They help to prevent spectacular evils, but they cannot be geared to cope with the basic problems raised by the continued existence of the giant corporation in our economy. The giant corporation will continue to exist; because of antitrust it will push its way more discreetly, but it will keep on pushing, deftly and surely. We will not cut it down arbitrarily, and any tests we may devise for selective surgery are more likely to lead us into government regulation of the public-utility type than into a condition of unfettered competition.

Frankly, I do not have an answer that I regard as more than partially

[1] See G. K. Galbraith, *American Capitalism: The Concept of Countervailing Power* (Boston: Houghton Mifflin and Company, 1952).

satisfactory; but I do have a prediction. In my judgment, our giant corporations are sitting like fat, delectable ducks waiting for the inevitable blast from the shotguns of big government. They will, in due course, be sprayed with statutory and administrative regulation and, in time, with public enterprise.

I am predicting, not advocating. In the giant corporation, management is largely free from control by the owners who, ostensibly and in economic theory, hired them. The giant corporation itself is held only loosely and unreliably in check by the market forces which must be counted on to regulate if "government-free" economy is to retain its "freedom." I cannot even guess at the occasion or the nature of the occasion, but I do not have the slightest doubt that one day the people of this country will gain the conviction that uncontrolled (or loosely or unreliably controlled) private power over the lives of vast numbers of people who do not contract with or elect the holders of this power is not good; and that they will act on their conviction. They will not act in a single all-embracing measure, but they will act steadily and in force. They will act to preserve the integrity of their souls if not of their pocketbooks.

And, as they come to decide on the nature of the action to be taken they will be impressed by an exhibit afforded by the giant corporation itself—the spectacle of far-flung bureaucratic enterprises operated with demonstrated efficiency, each one capable (if only a competition-rutted public policy had permitted) of co-ordinating successfully with others in bureaucratic operation on an even wider scale. They will be further impressed by the fact that the efficient management of these giant corporations is following profit as a guide even though it is not compelled to this course by competition or induced solely by personal economic gain. They will reason that the motivation here in operation more nearly resembles that of a college professor or a government official than that which tradition has said can alone produce economic efficiency and the economic well-being of society. And as the import of all this breaks upon them, the worried look upon their faces will be replaced by a "faraway" expression—and they will ask themselves "why not?"

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AMERICAN FINANCIAL INSTITUTIONS

Bank Administration, 1780–1914

I

I AM going to begin by asking a theoretical question or, if this term appears too ambitious, I am going first to circumscribe by way of generalization the role of business administration in economic development. In the second instance the hypotheses so gained will be tested through application to the history of American banking administration between 1780 and 1914. However, before starting on this task we must agree about the terminology to be used, since the word "administration" may connote either a series of actions, namely, the practice of administering something, or the personnel which professionally administers, say, a business enterprise or a public agency or the like. The same holds true *mutatis mutandis* of the term "management" which in this paper will have a specific meaning. I am going to apply both connotations to the terms administration and management, but in such a way that no misunderstanding is possible.

Administration of business enterprises, including banks, embraces two sets of functions. First the enterprise has to be brought into existence; its goal and fundamental procedures have to be determined; it must be endowed with a certain spirit; and be fitted in to the market and the national economy. All that is entrepreneurial function. The latter is performed by determining the major policies of the enterprise which in this connection appears to the decision maker as a kind of organism. But the enterprise at the same time is also a mechanism which has to be kept in good working order. This task is in my terminology the job of the manager who determines upon appropriate policies to that end. Consequently, there are entrepreneurial or managerial policies, entrepreneurial or managerial decisions, according to the task in hand. This paper will deal with both the entrepreneurial and managerial phases of bank administration.

These preliminary questions being answered, let me propose the following thesis: There exists interaction between business administration and several dynamic elements of economic life, namely,

1. Economic growth
2. Technological progress

3. Expanding division of labor
4. The prevailing structure of interenterprise relations

Let us first take up point after point in general terms. Later we will see these interrelationships in action when we survey the development of American bank administration, in chronological order, for those interrelationships are so intertwined that a topical treatment of the subject along those lines would be impossible.

Starting with the interrelationship between business administration and economic growth, we discover that economic growth on the one hand demands the development of business administration and that on the other hand progress in business administration makes further economic growth and change possible.

Let me give you a striking example which I found many years ago while still working on German material. By 1850 the German iron and steel industry had developed to the point that the combination of iron and coal production in one enterprise had become not only feasible but highly desirable. As a matter of fact in that decade several outstanding German businessmen, especially some belonging to the then most progressive Cologne group which exerted so deep an influence on German economic development, tried to bring about that combination. All those attempts ended in failure, the technique of business administration was not sufficiently developed to handle from one desk two types of enterprises as different as coal mines and blast furnaces. But in the following ten to twenty years German administrative practices and abilities in connection with the development of large-scale industry progressed to the point that by 1870 this combination could be brought about successfully and permanently. While one can clearly discern the pioneers, Grillo among them, and while these pioneers were bitterly assailed by what were then the "old fogies," administration of business enterprise had actually matured to the point that in the 1870's a step became possible that, though feasible, had been impossible in the 1850's. Here you see that interrelationship.

Secondly, we have the interrelationship between technological development and the development of business administration. But in this case the influence runs more in one direction than in the other. While the needs of business administration at times stimulate technological progress in the fields of communication and transportation—a striking case will be presented in the course of the paper—it is much more common for technological progress in communication and transportation to promote administrative developments. We will study later the

obvious correlation between the improved means of communication and the administrative handling of crises and between the telephone and chain banking. Incidentally, it seems to me that at any given time the maximum and optimum sizes of enterprises depend largely on the prevailing technology of communication and transportation.

Thirdly, we discovered interaction between expanding division of labor and business administration. Of course, there are different phenomena subsumed under that loose caption, but each of them in its own way interacts with business administration. First, as to specialization we will see that those unspecialized merchants who ran the earliest American banks did so in a manner distinctly different from that applied shortly thereafter by the first specialized bankers; as a matter of fact, the cashiers became the ancestors of the modern banking profession, that is, the first specialized bankers. To put it differently, the growth and development of banking demanded specialized personnel and, vice versa, specialized bank administrators, once in existence, developed bank administration. In the second instance we see later in the nineteenth century members of the banking profession specializing in certain functions, a trend which soon determined the development of bank administration. We will study that in more detail. Finally the development of banking made possible, nay necessitated, the establishment of ancillary enterprises and institutions. It was members of bank administrations who promoted that step which once taken forced the revamping of bank administration to fit into the new institutional set up. That is *in nuce* the story of the early clearinghouses.

Finally and fourthly, there is interaction between business administration and interenterprise relations which can be either of a competitive or of a co-operative nature. I think that time is gone when one looked at competition as a panacea, if not God-ordained. That the development of business administration can be and has been promoted by competition is generally accepted and needs no detailed description here. But in many cases, as we shall see, co-operation has been favorable to administrative development. We shall see that by 1900 the change from competitive to co-operative practices changed administrative behavior patterns and, vice versa, once these patterns were changed co-operation could be pushed on so that banking administration became more efficient.

II

After having mounted these four flashlights on our observation tower let us look around for what we can see by turning their beams on the various stages of bank administration, as the development unfolds before the historian's eye.

The years from 1782 through 1814 can conveniently be considered as representing the first period of American banking. Suspension of specie payments in 1814 marked its end. The form and procedures of bank administration in those decades were determined by the relatively small amount of business, the absence of a specialized banking profession, and to a certain extent by the fact that, at least in the commercial centers, co-operation, not competition, was characteristic of interbank relations. It goes without saying that, as a new line of industry, banks were not immediately overwhelmed with business. In fact the original American banks had many difficulties in floating their notes and keeping them afloat, and note issue was then for all intents and purposes synonymous with banking. This situation influenced American bank administration up to about 1850. To repeat, the amount of business handled by the banks in those years was small and consisted mainly of discounting first commercial and then increasingly accommodation paper, the debtor being paid in notes. On the other hand, the men who established those early banks were usually merchants who later came to run them, "delegated" into the boards by the stockholders. The former, in turn, were both policy-making and managing bodies. In those early years all important business was actually done by the boards during their sessions which usually took place twice a week on the so-called "discount" days.

Since in the beginning no one merchant knew more about banking than any other, the board members were originally each other's peers. Every one of them became in turn the director of the month who was expected to be in the bank during the office hours available for callers, making such decisions as could not be deferred to the next meeting, etc. The president was *primus inter pares,* a kind of moderator, who besides presiding over the board's sessions guarded the corporation seal, the plates of the notes, and so on. His main function, that of inspiring confidence with the public, usually determined the choice of the early bank president. He was a man widely known and highly esteemed in the community, although not necessarily a business leader,

nor even a man who knew something about banking. The cashier was distinctly a subaltern, who was expected to do what he was told; he can best be characterized as an exalted bookkeeper. But with few exceptions, capable, though not high ranking, businessmen were selected for the cashiers' jobs which soon became increasingly important. Able men, they could not help acquiring the special knowledge and experience which in the course of time was bound to give them superiority over the merchants on the boards.

However while this change was under way, another development in the boards themselves had begun. There the procedure was, in the beginning, a rather cumbersome one, reminding the historian of that of a club or medieval guild. Often the board member took an oath of secrecy; each one voted on every bill or note offered for discount, and in some banks the voting was done with white and black balls. Such methods could not be continued when business increased. Moreover no business can be run by a large committee, and the boards were *de facto* committees and actually considered committees of the banks' owners, the stockholders. In such cases certain members, more energetic than the others, will take a greater interest in the organization's functions and become real heads. Or to be concrete, such men on the early bank boards assumed the functions of the entrepreneur of theory, which quickly found expression in some boards' administrative practices. The boards set up committees for handling specific transactions, such as buying land, erecting a bank building, negotiating with other banks; and even such ridiculously minor matters as buying firewood or writing a letter. Certain activities had to be carried out every so often, at least once a year—counting the bank's cash, examining the books, and the like. It was quite natural that to such committees the same active board members were elected continually and thus the former by and by became standing committees. Before long their members through the instrumentality of these committees may have come to rule the bank. It must be kept in mind, however, that in the first period the trend toward bank administration through standing committees had not reached its final stage, the committees of the first period were at best approaching the status characteristic of the board committees of the period between 1814 and 1840.

I cannot show again in detail that country banks during the period under investigation and in the less developed sections of the country for decades thereafter were a kind of bank distinctly different from the type represented by the city banks of the commercial centers. The

former were disguised mercantilist land banks, while the latter descended from mercantilist money banks, the prototype of which was the Bank of England. We can deal here only with the city bank administration, which in the first period became quickly standardized. There were several reasons for this. First, co-operation determined interbank relationships in those decades. The earliest American banks were considered regional monopolies and did not think of competing among themselves. The founders of the older banks often gave advice to those of the newer, and the cashiers of the latter were occasionally trained by the cashiers and leading board members of the former. Younger banks were patterned on older ones and it is possible to distinguish whole families of banks according to their dependence on certain older banks as models. Advice by and training of early bank cashiers in older banks made for uniformity of administrative practices. Moreover, even after the commercial centers had seen the founding of second and third banks the spirit of co-operation prevailed. The boards of those banks usually appointed committees which met with committees of other banks, and joint committees recommended uniform policies which were ratified by the several bank boards. (But, tellingly, co-operation broke down during the critical years of the 1790's just when it was urgently needed.) Finally the most important of the earliest American bank founders had their hands in more than one bank and were, besides, usually personal friends ever since the days when they had co-operated, during the Revolutionary War, in what were business transactions of then unheard-of magnitude. The fact that the same men founded and participated in several banks contributed to the early emergence of the rather uniform administrative practices of American city banks. To give a few examples, the three greatest of the American bank founders, Robert Morris, Alexander Hamilton, and Jeremiah Wadsworth, participated in one way or another in the establishment of several important early banks.

III

The second period of American banking extended from the War of 1812 to, say, 1839 when it became clear that the consequences of the crisis of 1837 would not be overcome quickly, but that the crisis was being followed by a severe depression. Bank administration in that second period was determined by the following factors: growth of economic life, change of economic life, especially due to a speed-up caused

by the introduction of steam in transportation, and the emergence of a specialized banking profession (to be sure, I do not want to discuss here the moot question of whether or not the phrase banking *profession* is in order). As a result of economic growth and institutional change, bank boards as such could no longer administer banks. Business was becoming too big for the cumbersome procedure that administration by full boards entailed. And business grew because America grew and on top of that the public was becoming accustomed to using the services of banks. The speed-up of business, due to the technological revolution which was under way in the field of transportation (river steamboat, railroad, and ocean-going steamer) was reflected in banking when the best and largest customers refused to submit their paper for discount and then patiently wait until the next discount day. They now demanded an answer within a few hours, while in 1800 they had been satisfied to wait a few days. Consequently, the typical bank of the second period was administered by standing committees of the boards. Of these the so-called "exchange" committees became the most important ones, because they took over from the boards the decision regarding paper offered for discount. The boards now either deteriorated into powerless and useless assemblies, the directors not even showing up at the meetings, or they found a new proper function in policy determination, pure and simple. This latter development was clearly recognized as desirable by Nicholas Biddle.

However economic growth and institutional change came so fast in the decades under investigation that, before it had really become common, bank administration by standing committees no longer provided an answer to the need for administrative efficiency. What was really demanded in the large and growing city bank was a chief executive, and he could now emerge, since, in contrast to the 1780's and 1790's, expert bankers were available in sufficient numbers. Prior to, say, 1840 there were two possible ways for a man to become an expert banker. One could gain that status through years of active service on bank boards and their committees; Nicholas Biddle is the outstanding example of a professional banker who received his education on a bank board. But more common was the routine career: one started as a bookkeeper and after some years became cashier and finally the president of one's bank. Such careers, however, are indicative of another change: while the earliest cashiers had not thought of becoming presidents of their banks and in 1800 would not have fitted a presidential chair, after about 1815 the rise of cashiers to the apex of the pyramid

became possible, since the president's functions were undergoing rapid change. The awe- and confidence-inspiring figurehead of 1800 was no longer needed, but instead a chief executive. The cashier who had worked for years, perhaps decades, for a bank was often the natural choice for jobs of that kind with or without the title of president. As early as 1830 we find in Nicholas Biddle a truly modern bank executive, who had relegated the standing committees of the Bank of the United States to obscurity. Conditions were similar in some large New York City banks.

I want it to be understood that the sequence of stages in the development of bank administration as presented here is to be characterized as a model of administrative development. In reality we find until the 1860's all those stages side by side and they did not necessarily follow each other in all cases. This was due to the fact that newer sections of the country and consequently the administrative needs of their banks were years and even decades behind the older sections and their necessities. Moreover the personal element played a role: strong men in individual banks developed relatively early into chief executives, possibly before standing committees had the time to take over. Other banks were founded just in what were transition years in their sections and immediately chose the more modern method, at one time because there were strong men on the first board, at another because there was a good expert available for an appointment. Only if one delves into the records can one gain a realistic picture and find that as late as the 1850's there were some banks run by full boards, others by committees, and again others by individual executives. Moreover in some cases of administration by executives the cashier acted in that capacity, in others the president, and again in others president and cashier as a team acted as executive of the bank concerned.

IV

We are now turning to the third period of American banking extending roughly from 1840 to suspension in 1861. But before doing so one more remark must be made about the second period. The spirit of competition was then replacing that of co-operation so that we no longer find agreements on administrative policies nor that uniformity of practices which was typical of the early decades. The new behavior pattern prevailed also in the third period.

In the latter it was not so much growth but rather institutional

change which exerted decisive influence on administrative practices; and institutional development was at least in part the result of the improved bank administration of the second period. For the 1840's and 1850's banking ceased to be identical with note issue. The check came into its own, demanding far-reaching administrative changes. In America interbank obligations were coeval with banking; they originated first when banks took notes of other banks on deposit or in payment of debts. But only after 1840 did interbank obligations in the form of checks become a problem. Better banking, due to better bank administration, increased the number of bank accounts. Their holders, when borrowing, demanded book credits instead of bank notes, and in general they became accustomed to making payments by checks regardless of whether their accounts were lodged or created ones. What were for the time floods of checks had to be handled by bank managers, who by the 1850's created the first ancillary institutions in their field, the clearinghouses.

If one studies the latters' origin one can see as in a test tube that objective conditions and necessities do not act automatically by themselves; they don't push or pull, and the vast majority of all those concerned feel nothing but the pinch. But a few creative men not only feel that pinch, but begin thinking about ways to overcome the difficulties and buckling down to doing the job. In this case it was some New York bankers, younger men who assumed leadership, especially the painter-banker Francis William Edmonds and the young bookkeeper George Dummer Lyman, who became the first American clearinghouse manager and in fact a creative manager of first rank. The latter got the backing of the then leading elder banker, Thomas Tileston, at the same time that the former and a few associates were experimenting with note exchanges. When both groups joined, the New York Clearing House came into existence. Philadelphia followed suit rather late and again the personal element is clearly discernible. A then powerful local banker, Allibone by name, *de facto* a bankrupt, held up for years the establishment of a clearinghouse because it would have revealed instantly his true status. Only when he had to confess to being bankrupt could the Philadelphia Clearing House be founded.

George Dummer Lyman was an unusually farseeing man. Hardly had the first clearinghouse come into existence before he foresaw its future. Clearinghouses actually became, as he predicted, platforms for permanent interbank co-operation and they standardized administrative practices. More than that, prior to the First World War some of

them became at times true cartels, assuming policy-making functions and forcing their members to abide by their decisions.

Once clearinghouses had become established facts, their influence in times of crises was especially far-reaching and this may be the place to say a few words on the handling of crises by American bank administrations. The crisis of the 1790's was not consciously manipulated and especially was there no co-operation among the banks. But when suspension threatened in 1814, specific administrative actions were needed and actually taken in the banks of the large commercial cities. In view of poor communication facilities the banks in each city acted more or less co-operatively, but independently of those in others. However some cashiers in each city corresponded with professional friends in others and very slowly administrative parallel actions in the various banking centers developed, until resumption was determined upon in the course of a quasi-national bank convention. In 1837 bank administrations in the leading cities drew immediately on the experience of the years 1814–1816 so that their actions from the outset approached similarity. Nevertheless distinct local dissimilarities in the administrative handling of the identical problems are obvious. Communications between the bank centers were established much faster than in 1814 but, when it came to taking action on the national level for the purpose of resumption, the procedure was very cumbersome, due to the prevailing state of technology in communication and transportation. There were local and regional bank conventions resulting in more or less permanent emergency organizations, election of delegations to a truly national bank convention meeting in 1838, new local and regional meetings, another session of the national convention, still more local and regional meetings, and in the end a big mess. It was not due to the traditional villains of the sound money writers, the wicked Philadelphians misled by the bankrupt Biddle. The bankers of the period were not yet able to handle their common administrative problems by agreement. The technology of transportation was still so undeveloped that this gigantic country had not yet become a true national economy, and communication was so slow that simultaneous action under one national plan even if it had been feasible was out of the question.

Let us turn to the administrative handling of the crisis of 1857. The competitive spirit had by now swayed the country; the only existing clearinghouses were those of New York and Boston and they were still fledglings. There was a minimum of co-operation, although in the end the banks of the various cities had to get together. Such co-operation

as came into existence showed distinctly local patterns. This was true partly because the practices of 1837 and the following years had hardened for historical reasons and partly because of different banking legislation. Where free banking prevailed, as in New York, administrative measures had to be different from those under the very dissimilar Massachusetts banking set-up.

How different a picture do we find only three and four years later when suspension threatened in 1860 and when it actually came in 1861. In the former year for the first time the bankers really made use of the much improved means of communication. In 1860 the genius of George S. Coe, one of American's most creative bankers, developed the clearinghouse loan certificate out of an earlier precedent. It was a new extralegal credit instrument and a great administrative achievement. Two days later—I repeat only two days later—the Boston bankers were so well informed about what was going on in New York that a strong minority suggested that similar action be taken in the Boston Clearing House. There is no better example of the dependence of administrative action on prevailing technology. The only reason that this action was not taken was the fact that that organization was then dominated by men between sixty and seventy-five.

Slightly later the railroad and telegraph made possible also the $150,000,000 transaction by which in 1861 the united New York, Philadelphia, and Boston banks took that amount of securities from the Secretary of the Treasury. The admirable administrative handling of that business by the banks was possible because one could travel back and forth without much loss of time and on top of that could communicate by telegraph between meetings.

V

One can consider the years from 1862 through 1882 as the fourth period of American banking, which ended when in the latter year the system of national banks established during the Civil War became permanent. Those two decades were not a glorious period for American banking which was content to proceed along the roads that the creative men of the earlier period had laid out.

In contrast, the following (fifth) period of American banking—that extending from 1882 to the creation of the Federal Reserve System—was full of administrative problems for banking and the leaders re-

sponded to the challenge most creatively. Rapid development in the national economy as a whole set the pattern. The period saw the emergence of the gigantic industrial enterprise and banks were forced to provide for the credit needs of the giants to the extent that was possible under the then existing law. Several different roads could be and were taken: first, banks themselves might grow to gigantic size so as to become big industries' peers. Leaders on this road were, for example, George F. Baker of New York and James B. Forgan of Chicago. Secondly, one could develop both intracity and intraregional branch banking. As an exponent of the latter Amadeo Pietro Giannini started out in the 1900's, but his rise occurred in the post-First World War years. William A. Nash and his successor, Walter E. Frew of the Corn Exchange Bank of New York, were the successful pioneers of intracity branch banking. Thirdly, chain and group banking could be developed. If one studies this latter type of banking, one discovers how closely it was related to the development of the telephone. When, prior to the invention of the telephone, banks and especially private bankers tried to establish branches they did so by organizing different partnerships at selected places. All of them had certain partners in common; but each had also a resident partner who usually did not share in the other partnerships of the group but ran the particular bank and received the lion's share of its profit. With the coming of the telephone one man or a team could own, directly or through the agency of a holding company, numerous banks, run by employees who received orders and advice over the wire. It is telling that James F. Toy of Sioux City, Iowa, a very successful builder and administrator of a group of banks was a pioneer telephone user. Since public telephones did not yet exist in the state, he used private telephone lines to connect his banks.

The main administrative problems for branch and chain or group banks was the shifting of funds from surplus to deficit members and the training of heads of the subordinate units. Details cannot be given here. The gigantic unit bank had other worries which were of greater significance. Prior to the 1890's the banker had a rounded-out training and could fill more or less well every job which had to be done in a bank. In the large-scale unit bank it first became necessary to develop specialists to perform certain functions and only those functions. Thus by 1900 we see the credit man coming to the fore, a bank officer whose sole job it was to watch the credit standing of the bank's customers. Another specialized officer, important in those banks which had bond

departments, was the security trader. This job in the First National Bank of New York was filled by a former partner of Jay Cooke. Such bond departments also made use of bond salesmen, headed by a sales manager. Other specialists were to be found in the foreign departments, in Europe called *rembours* departments, financing the exporter or importer and concentrating all dealings in foreign exchange in their hands. In view of such developments some bank leaders, really top men, took a special interest in managerial problems, as for example James G. Cannon, for years a vice-president and finally for a few years the president of the Fourth National Bank of New York. It goes without saying that the existence of specialized bank personnel contributed to the superiority of the gigantic unit banks and thus furthered the development of such banks, that is, administrative progress necessitated by economic development pushed that development forward along the road which it had already entered.

Of course the leading bank of 1900 could not be administered by full boards and the latter normally could not even be policy-making bodies. Administration and the vast majority of, if not all, policy-determining decisions were in the hands of the chief executive and his team. Presidents or sometimes chairmen of the boards had the ultimate power of decision if it did not lie in the hands of an outsider, an investment banker who may or may not have been a board member. What then was the actual function of the boards of the leading banks of the 1900's? They were so full of interlocking directors that I suspect their major function was to keep the banks from entering on competitive hostilities. But it is hardly possible to prove that contention. Maybe those interlocking directors were also responsible for the quick spread of administrative innovations in the handling of critical conditions, both of singular and cyclical character. George S. Coe of New York and James B. Forgan of Chicago were instrumental in devising methods of guaranteeing the deposits in failing banks in order to avoid runs on the other banks of the community. Such methods were copied elsewhere when the necessity occurred. Confidence so created contributed to further growth of banking. On the other hand, the leadership of these two men is explained by the progressiveness of their thinking. They were among the earliest, if not *the* earliest, bankers to realize the mutual dependence of all banks and their mutual interest in sound administrative practices, so that they stood for and promoted a co-operative instead of a competitive behavior pattern.

Of all the managerial problems by which the American bank of our period was beset, the most urgent one was created by the flood of checks reaching the banks each and every day, a flood due to economic growth and the change of business habits. The more even remote parts of the country were covered by networks of banks, the less bank notes were demanded and the more checks were drawn. By 1900 the flood could no longer be channeled by the methods then known. Or to stress the point, a new administrative problem had come into existence as the consequence of economic development. Under these circumstances creative managers of banks, in charge of the so-called "transit" departments took action. First, they dropped the name of the drawer of a check before registering it and replaced the copybook by the carbon copy. At that point administrative needs stimulated technological progress: the industry of office machines provided banks with the "billing" machines with tabular attachment. The amounts were printed in a column by means of a tabulator which spaced automatically. Then adding machines came into the market. That helped for a while, but again after a few years the transit departments were in danger of breaking down when the flood of checks increased still more. Then administrative progress was achieved again, the so-called "numerical" system was introduced, which designated customers' and correspondents' accounts by numbers instead of by names. This administrative innovation, in turn, inspired further technological progress. The industry adapted the machines mentioned above to the numerical system, so that it became possible to write transit letters on specially constructed machines with special keys for standard instructions. Thus the administrative problem was ultimately solved in co-operation between bank managers and engineers.[1] Since bottlenecks were excluded at this point of the administrative flow, further growth of banks was facilitated. This interesting development illustrating the interplay of administrative and technological progress interacted with economic development on a second and higher level. The introduction of the numerical system opened the banks to cheaper female labor, that is to say, the solution of an administrative problem contributed to the extension of the potential labor force and, once the new potentiality had become reality,

[1] Once more in the 1920's administrative necessities in banking led to technological progress. As Mr. Harold C. Passer informed me, in that decade the New York banker, now president of the Recordak Corporation, Mr. George L. McCarthy, became aware of the urgent need of banks for more complete records at reduced costs as a safeguard against fraud. After considerable experimenting he developed the microfilm.

an increase in the national income due to this new trend could contribute to further economic development. Again we find at play that interaction of administrative and economic development.

By 1900 the widening use of checks entailed a second administrative problem for bankers, the handling of large quantities of out-of-town checks. The latter, in turn, were indicative of the emergence of closely knit economic regions and of a true national economy although also of changing business habits. We cannot treat the solution in equal detail here. Suffice it to say that against much opposition it was solved through the agency of an ancillary organization. Two creative entrepreneurs, high-ranking Boston bankers, put all their energy into the building of a regional check-clearing system, winning the backing of the majority of Boston banks. They fought the plan through against much (and in part malicious) opposition, including that of New York City bankers. But the attempt would have failed without the co-operation of an equally creative manager, the executive of the Boston Clearing House, who found the answer to a baffling managerial difficulty.

VI

Let me close at this point. It has not been my intention to provide you just with facts that you can find in print. I wanted to show a significant set of interrelationships in the framework of the general topic which forms the central theme of these papers, interrelationships which I do not have to enumerate again. But I do wish to point to another and more fundamental problem. Mentioning names in this paper was more than a frill. For nonempiricist economic historians, among whom I count myself, it appears that the development of bank administration, like any other in the economic sphere, must be studied and analyzed on two levels. The nonempiricist economic historian, to the extent that he is not a determinist, tries to comprehend a development, to see it as resulting from and reciprocally influencing objective conditions. But he also tries to "understand" that same development, seeing it as caused by individuals. The latter act under the influence of those objective conditions, becoming aware of them with minds swayed by specific sets of values, and they deal with the problems with the help of ideas often absorbed during their adolescence. In the terms of Max Weber, one understands these men's actions by seeing them in the framework of a meaningful complex; in a framework of meanings

which the actors themselves assign to their goal-oriented actions or would so assign if the goals were not hidden to them in their subconsciousness or through their inability to reflect on their true motives.

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The Marketing of Securities, 1930–1952

ONE of the major centrifugal forces in American economic history is the industrial revolution which has been taking place for the past 150 years. Corollary to it are the agricultural revolution and the transportation revolution. Most of the investment capital and working capital for the expanding enterprises involved in these revolutions came from plowing back profits, but a sizable amount had to be borrowed or obtained from outside investors. Mobilizing this capital was a major undertaking, especially in a new nation in which capital was relatively scarce. Its successful accomplishment involved a financial revolution.

The financial revolution has had three stages. The first one, between the American Revolution and the Civil War, witnessed the birth and early growth of most of our more important financial institutions, for example, the life-insurance company (1759), the commercial bank (1781), business corporations (1790's), the stock exchange (1792), the trust company (1818), and investment banking. The chief characteristics of this stage were a fumbling effort to mobilize capital and a near absence of governmental regulation.

The second stage lasted from the Civil War to the panic of 1929. Two major wars, improving technology, and broader markets enlarged financial operations. On a peak day in 1857, 70,000 shares changed hands on the New York Stock Exchange, whereas on an average day in 1926 the figure was 1,500,000 and on a tragic day in late October of 1929 a record of over 16,000,000 was reached. Common-stock values tripled between 1871 and 1926 and industrial stocks increased sixfold,[1] replacing railroads as the "blue chips" of the market. People paid their local bills about once a month instead of perhaps twice a year.[2] Capital was forming at an average rate of about 12.5 per cent a decade from 1869 to 1928 according to Simon Kuznets.[3] It was an age of fabulous profits and great fortunes. It produced Jay Gould, Jim Fiske, John

[1] United States Department of Commerce, *Historical Statistics of the United States, 1789–1945*, pp. 281–82.

[2] Rolf Nugent, *Consumer Credit and Economic Stability* (1939), pp. 48–51.

[3] Simon Kuznets, *National Product Since 1869* (New York: National Bureau of Economic Research, 1946) p. 84; National Industrial Conference Board, *The Economic Almanac for 1950*, p. 102.

"Bet-You-A-Million" Gates, and later such would-be financial Napoleons as Richard Whitney, Charles Mitchell, and Albert Wiggin. There were more constructive men, too, such as the elder J. P. Morgan. During his time, investment banking fell into the familiar three-step routine of investigation, underwriting, and selling and he frequently put a partner on the borrowing company's board to watch and assure good behavior. Men were very much measured by the profits they could make. The financial class behaved like a vigorous youth who enjoys satisfying his appetites but does not yet know his limitations. The dissipation ending in 1929 taught some of those limitations.

The third stage began about twenty years ago. The financial class demonstrated a more cautious attitude born of experience. The Federal Government began to regulate the securities dealers and the stock exchanges and again overhauled the banking laws. The trend has been toward the protection of the investor, elimination of unnecessary costs in handling capital, and the preservation of capital. Probably the chief threat to capital has been the government itself which has been a veritable Dr. Jekyll and Mr. Hyde. It has been Dr. Jekyll when acting through conscientious regulatory bodies, and Mr. Hyde when destroying the purchasing power of the dollar by indulging its bad fiscal and monetary habits.

These periods are not, of course, clear cut. New institutions appeared in each; regulations became more numerous every decade. There was some effort to protect the investor in earlier periods, and there is and always will be some irresponsible chasing after profits.

I

It is the third stage—that of capital preservation—that is of primary interest. What have been some of the chief financial developments in it?

The national income grew slowly during the 1930's and rapidly during the 1940's. Disposable personal income increased from $82.5 billion in 1929 to $92 billion in 1940 and to $231.5 billion in mid-1952. People began to save more. Personal savings averaged only 2.5 per cent of annual disposable income from 1929 to 1940, but during the Second World War they reached about 20 per cent and totaled over $125 billion. Since then they have slipped back to 5.5 per cent of disposable income in an average year. Net private capital formation was at a negative rate in the decade of the 1930's and during our participation in the

Second World War. It picked up sharply in the later 1940's.[4] Savings found more private investment outlets.

With all this growth went other important changes. Particularly noteworthy are the changes in the methods employed by industry to get capital funds and those employed by investing institutions and investors in placing their savings. These changes were influenced primarily by one or more of five conditions that prevailed during most of these two decades: (1) Taxes in the 1940's were much higher than in the 1920's. In 1927, for example, Federal taxes were 5 per cent of national income and persons in the top income-tax bracket paid 27 per cent; in 1948 Federal taxes were about 18 per cent of national income and the top bracket paid 85 per cent. (2) The consumer's dollar lost purchasing power rapidly from 1939 on. About 5 per cent of its remaining value melted away each year until in 1952 it would buy only 53 per cent of what it did in 1939. (3) Interest rates fell sharply from 1929 to 1933 and reached an all-time low in 1946. During the 1920's the government was paying 4 to 4.5 per cent on most of its debt; in the 1930's, 2.5 to 3.5 per cent; and in the 1940's, 2 to 3 per cent. To an increasing degree government rates have set the standard for the market.[5] (4) The memory of the stock-market crash of 1929 made people very fearful of common stocks. In 1948 an investigation conducted by the Federal Reserve System revealed that 62 per cent of all people interviewed questioned the wisdom of owning common stocks in business enterprises, 33 per cent voiced no opinion, and only 5 per cent favored ownership.[6] Corollary with this, the new or Keynesian economics emphasized fear of depression. Many, perhaps most, economists believed there would be a postwar depression. (5) The restrictions of the Securities and Exchange Commission, although probably justified, discouraged somewhat the public marketing of securities. At least there were $350 million of new issues a year during the 1920's and only a little over $100 million a year from 1937 to 1947. When possible, corporations avoided the tedious and costly business of registering their offerings with the commission. This could be done by borrowing directly from not more than twenty-five lenders.

All this means that the income from a given bond investment is far less today than in the 1920's. Bascom Torrance, vice-president of the City Bank Farmers Trust Company, testified in 1950 before the New

[4] Conference Board, *Almanac, 1950*, pp. 114–15; *Survey of Current Business*, monthly, 1946–50, *passim*.

[5] Conference Board, *Almanac, 1950*, p. 453.

[6] *Federal Reserve Bulletin*, July 1948, p. 777.

York legislature that a $50,000 trust in 1928 could easily produce an income of $2,300; by 1937 it could produce only $1,900, and by 1949 only $1,400.[7] Meanwhile taxes took a larger share and the dollar bought less. The higher yields on stocks offer one possible way to make up for the decrease in bond income. During most of the 1940's industrial common stocks yielded approximately twice what long-term government bonds or Moody's corporate AAA bonds did.[8] But the memory of 1929 and the specter of a postwar depression have discouraged men and institutions from seeking this avenue of escape. Those who have taken it have wanted the safeguards of professional advice and diversification and have sought some relaxation of their legal responsibility. Those who have clung to bonds have sought to eliminate the middleman as much as possible. The corporations have been anxious to co-operate and to side-step the S.E.C. The loser in all this has been the old-fashioned investment banker. Let us look at some of the new practices evolved by some chief types of financial institutions.

II

During the 1940's the income of life-insurance companies grew from half a billion to a billion dollars a month.[9] That is a lot of money to have to invest. And life-insurance companies have become increasingly concerned over falling interest rates. The average return on assets of life-insurance companies in 1925 was 5.11 per cent; by 1944 it had fallen to 3.19 per cent.[10] The difference, incidentally, between 3.19 and 3.18 per cent is $100 on each million dollars or $1,000,000 on ten billion dollars. So is the difference between buying securities at, say, 99.00 instead of 99.01. In the 1930's, the insurance companies began to wonder why they should pay for corporate bond flotations by investment bankers when they might just as well buy whole issues directly and eliminate these costs and make up in some way for falling interest rates. It was not an entirely new idea, but from 1937 on an increasing amount of direct buying was done, although rarely on a large scale until after the war.

The Equitable Life Assurance Society of the United States then showed the way. In the spring of 1945 the Pennsylvania Railroad was

[7] *Business Week*, March 11, 1950, p. 111.

[8] *Federal Reserve Charts on Bank Credit, Money Rates, and Business*, August 1952, pp. 25–26.

[9] *Life Insurance Fact Book, 1951*, p. 47. Life-insurance companies' total annual income in 1940 was $5.2 billion; in 1950, $11.3 billion.

[10] *Ibid.*, p. 50.

asking for bids on the handling of a $53 million 40-year issue of 3 per cent bonds. Halsey, Stuart & Co. and Kuhn, Loeb & Co. were the chief bidders and Halsey Stuart felt sure they had it with their bid of 99.3899 and were going ahead with preparations to market it. To their surprise they lost it to Equitable which put in a last-minute bid of par or 100 and took it.[11] This was quite a jolt to the investment-banking fraternity at the time and they made much of the fact that Equitable had paid a high price. A month later Equitable took another prize, $25 million of Gimbels Department Store debentures,[12] and the postwar trend was on. In 1946, $1.6 billion of corporate obligations were placed privately. For example, General Electric sold $150 million of notes to eleven life-insurance companies and three trustees; Inland Steel sold $50 million of bonds to eight life-insurance companies, and Monsanto Chemical sold $30 million of bonds to five life-insurance companies.[13] Between 1947 and 1951 about 40 per cent of all issues were sold privately (see Table I). The Equitable Assurance Company purchased 84 per cent of its investments directly in 1951. Most direct placements in 1951 were unsecured bonds with twenty-year or more maturities, which paid 3 to 4 per cent.[14]

The investment houses of Wall Street and LaSalle Street were quick to realize that they must adjust themselves to this new trend. When a big industrial corporation sought out a big insurance company there was nothing much the investment houses could do. But there are plenty of good and relatively unknown corporations wanting to borrow and many small and middle-sized insurance companies wanting to invest. When investment bankers bring about a meeting between these, and perhaps help draw up the terms, they charge the borrowers a "finders' fee" for the service. Investment bankers collected $6 million in 1950 in such fees. The rates ranged from 20 cents on $100 for large issues to $1.70 for small ones.[15]

It may be asked what the attitude of the Securities and Exchange Commission has been to this development. That body was set up to protect the small investor. Big financial institutions have little need of the commission. Insurance companies and other direct buyers such as pension trusts, investment trusts, or trust companies have sufficiently

[11] *Business Week*, May 19, 1945, p. 64.
[12] *Ibid.*, June 19, 1945, p. 78.
[13] *Ibid.*, December 14, 1946, pp. 118 ff.
[14] E. V. Hale, *1952 Yearbook of Private Placement Financing* (Chicago, 1952). Also *Business Week*, August 24, 1946, pp. 80, 90; July 3, 1948, p. 59.
[15] *New York Herald Tribune*, September 5, 1952, p. 24; *Business Week*, November 22, 1947, p. 90.

experienced personnel and good enough sources of information to take care of themselves. The investment bankers would like to see S.E.C. registration of direct placements and the insurance companies are opposed. Chairman H. A. McDonald of the S.E.C. said in January that the S.E.C. would be sympathetic to registration, but believes that the initiative must come from the investment industry.[16]

III

A corollary of private or direct placements has been long-term loans by big banks to corporations, called "term" loans. These began in the

TABLE I

PRIVATE PLACEMENT FINANCING, 1900–1952

	SECURITIES AND EXCHANGE COMMISSION		COMMERCIAL AND FINANCIAL CHRONICLE	
Year End	*Millions of Dollars*	*Per Cent of Corporation Placements*	*Millions of Dollars*	*Per Cent of Corporation Placements*
1900–33	——	—	1,000.0	3
1934–38	1,900.0	18	——	—
1938	——	—	680.5	32
1939	789.9	36	728.6	33
1940	773.7	29	834.6	30
1941	823.8	31	957.3	37
1942	422.2	40	433.9	42
1943	371.9	32	272.9	25
1944	791.7	25	870.0	27
1945	1,021.7	17	1,283.6	20
1946	1,917.7	28	1,581.6	24
1947	2,235.9	34	2,123.3	39
1948	3,271.8	46	2,512.0	40
1949	2,526.4	42	1,947.9	37
1950	2,726.0	43	2,448.3	41
1951	3,455.6	45	2,581.4	39
1952 (June)	1,977.1	40	1,194.2	31

Sources: United States Securities and Exchange Commission, *Statistical Bulletin*, monthly since 1942; *Commercial and Financial Chronicle*, annual reports on Capital Flotations, about mid-February each year, 2d section. Each of these authorities revises its estimates for the year repeatedly as new information pours in. The S.E.C. figures for percentage of corporate placements were calculated by me.

The S.E.C. and the *Chronicle* both count all public utility and railroad offerings as public, since the initial bids must be made publicly. This is despite the fact that the eventual buyer may be only one company—the Equitable buying Pennsylvania Railroad bonds in 1945—or a small group and that the securities may never be offered to the public.

[16] Report of speech in *Commercial and Financial Chronicle*, January 10, 1952, p. 98.

middle 1930's. Banks had had bad experiences with unamortized corporate bonds in their portfolios. What might take their place? Each bank had lots of deposit money to lend out and was competing with other banks in the same predicament. Loans pay higher interest rates than do government bonds. The big banks began experimenting, at first timidly with one-year term loans, amortized quarterly, made to their very best customers. The First Bank of Boston was a pioneer in making this new type of loan. Gradually the term lengthened to five and even ten years, more customers were favored, and the proportion of term loans grew to be quite sizable. The corporations liked term loans because they were easier to arrange than a bond flotation, because they paid only a stand-by or commitment fee of ½ of 1 per cent on unused portions of the loan, and because they did not fall under S.E.C. jurisdiction.

About 1946, banks began to shorten the time of their term loans and limit themselves to a maximum maturity of no more than five years. If a customer now wants to borrow for a longer period, say fifteen years, a "tie-in" arrangement is sometimes made with an insurance company. The bank will collect its principal during the first five years and the insurance company will collect its principal during the last ten. That also makes possible bigger loans.[17]

Since the National Banking Act forbids a national bank to make an unsecured loan to one borrower of more than 10 per cent of the bank's unimpaired capital and surplus, it is only the big banks in New York, Chicago, and a few other big cities that can handle the multimillion dollar loans desired by the big corporations. The banks generally share these loans.

Term loans today constitute close to 25 per cent of the loans and discounts of the big New York and Chicago banks. This is hardly in keeping with Walter Bagehot's once famous dictum that the first thing a banker must learn is the difference between a promissory note and a mortgage, for his business is with the former. Yet since the changes of 1933 and 1935 in the banking laws and banks' huge acquisitions of government securities, banks do not have to be as liquid as they once did.

[17] Much of this information was obtained while I was a Fellow of the Foundation for Economic Education at the National City Bank of New York for six weeks during the summer of 1952.

IV

There were 2,976 trust institutions in the United States in 1947 with $36.2 billion of trust assets.[18] The assets of individual trusts in national banks increased over 1,000 per cent between 1928 and 1951.[19]

A trustee must carry out the provisions of his trust instrument. If that does not direct him how to invest any funds, or grant him discretion, then he must choose only from a list of securities, called the "legal list," deemed by state authorities to be safe. A majority of trust instruments allow the trustee discretion.[20] Yet a large minority, covering $4 billion out of $13 billion in New York in 1949, for example, are so drawn that funds must go into legal list securities.[21] These are generally government bonds or other debt securities.

Trustees have little to gain by investing trust funds in equities, for if the stocks prove bad, the trustee runs the risk of being sued for speculating. On the other hand, even if the dollar should lose, say, 90 per cent of its purchasing power, and the trustee kept all trust funds in government bonds and never lost a cent—just 90 per cent of purchasing power—the law could not touch him for dereliction of duty.

Declining real income from trust investments in recent years because of inflation, higher taxes, and lower interest rates has led trust beneficiaries to complain to corporate trustees, and the trustees in turn to seek a change in the old laws so that more trust funds may be invested in stocks. During the last twenty-five years there has been a strong swing to the so-called "Prudent Man Rule."

In 1831 Justice Samuel Putnam of the Massachusetts Supreme Court handed down this famous decision in Harvard College *vs.* Amory. He said, in part, "All that can be required of a trustee to invest, is, that he conduct himself faithfully and exercise a sound discretion. He is to observe how men of prudence, discretion and intelligence manage their own affairs, not in regard to speculation, but in regard to the permanent disposition of their funds, considering the probable income,

[18] Gilbert Stephenson, *Trust Business in the United States in 1947*, Studies in Trust Business, 4th Series, Study No. 4, pp. 19–20.

[19] Conference Board, *Almanac, 1950*, p. 92; *Annual Report of the Comptroller of Currency* (1951), p. 100. An average individual trust in 1946 was $109,000.—*Trust Bulletin*, May 1948, p. 12.

[20] Bascom Torrance, "Legal Background, Trends, and Recent Developments in the Investment of Trust Funds," *Law and Contemporary Problems* (Duke University), Winter issue, 1952, pp. 138–43, 161.

[21] *Business Week*, March 11, 1950, p. 111.

as well as the probable safety of the capital to be invested." [22] This Prudent Man Rule, long effective in only a few states, is now effective in twenty-four states and partially effective in ten more. New York partially adopted the rule in 1950. Bascom Torrance of the City Bank Farmers Trust Company pointed out to the New York legislature that between 1928 and 1940 some $800 million of legal list bonds had defaulted. Now trustees in New York are allowed to invest up to 35 per cent of legal list funds in stocks. As a result New York trust companies are cautiously yet steadily buying more high-quality stocks.[23]

The cost of separate administration of many trust funds is high, and trust companies like everyone else are faced with rising costs. In the interest of efficiency and economy the trustees have sought permission to set up so-called "common trust funds" and laws have been passed granting this in thirty-seven states. Now under certain conditions each trust company or trust department of a bank may set up its own investment trust run solely for the benefit of trust accounts. By 1950 New York trusts had $52 million invested in such funds and Pennsylvania trusts had $219 million. The New York common trust funds earned 4 per cent in 1950, compared to 2.6 per cent by legal list funds, according to State Bank Superintendent William A. Lyon.[24]

A third important development in the trust field is the rise of pension trusts which are growing rapidly. The number of pension plans was recently estimated to be 15,000 and to cover almost 15 million workers. In 1949 about $1.2 billion was pouring into these funds each year to be invested; the figure is now believed to be close to $2.25 billion.[25] Trust companies handle most of the large pension trusts. For the same reasons as apply to other trusts a part of the funds is being put into common stocks. A few pension trusts place half or more of their funds in common stocks, although about 30 per cent is a more generally followed proportion.

[22] *Massachusetts Reports*, 9 Pickering, 446, 457, 461 (January 10, 1831).

[23] *Business Week*, March 11, 1950, p. 111; June 17, 1950, pp. 100 ff. Under the New York law trustees may invest up to 35 per cent of legal list funds "in such securities as would be acquired by prudent men of discretion, using intelligence in such matters, who are seeking a reasonable income and the preservation of their capital."

[24] B. Torrance, "Legal Background," pp. 138–43, 161; *Business Week*, July 8, 1950, p. 81.

[25] Morgan Stanley and Co., *Pension Plans and Common Stocks* (New York, 1950), p. 9; Henry C. Alexander (President of J. P. Morgan, Inc.), "Observations on Pension Funds," *Commercial and Financial Chronicle*, June 26, 1952, p. 28.

V

Another important financial development has been the investment trust. This is a company whose business it is to buy and manage a list or portfolio of securities. The funds originally come from the company's stockholders who pay in money to be invested and take the investment trust's stock in return.

On an organization basis, investment trusts fall into two categories, the closed-end and the open-end. The closed-end is the older but now the less important variety. The closed-end company has a fixed capitalization, like any normal corporation, which can only be increased by appeal to the stockholders. It can issue common and preferred stock and bonds. A major selling point is the "leverage" profits this may produce. Tri-Continental Corporation of New York is an example of a closed-end investment trust.

On the other hand, the open-end company or mutual fund can issue only common stock but can issue new stock daily and use the money paid in to buy new securities. The mutual must redeem its stock on demand and may sell some of its holdings to do so. All this means a daily revaluation of the stock. It is primarily the fast-growing mutuals which interest us.

The first American investment trust was the Boston Personal Property Trust established in 1893. But it was not until the 1920's that the investment trusts were of any importance. The first and still the largest open-end trust is the Massachusetts Investment Trust, known as M.I.T., founded in May of 1924. By the end of 1949 it had a quarter of a billion dollars invested in 136 corporations for its 72,000 stockholders. Many closed-end trusts were set up in 1927, 1928, and 1929 in time to buy securities at high prices. The 1929 crash and poor management too in some cases gave investment trusts a dubious reputation for several years.

When the securities markets began to revive in the 1930's, it was the flexible open-ends that grew. The 1937 panic slowed them for a while again. The Securities and Exchange Commission in 1938 called the growth of investment trusts "probably the most important single development in the financial story of the United States during the past 50 years." [26] That was before the startling increases of the 1940's. After some preliminary sparring between the investment trusts and the

[26] Quoted in *Business Week*, March 26, 1949.

S.E.C., they jointly prepared the Investment Company Act of 1940.[27] Its passage was assurance that the investment trust mistakes of the 1920's were not likely to be repeated. Since 1940, the total number of mutual-fund shareholders has more than quadrupled and total assets have increased eightfold, as Table II shows. The assets of 103 open-end companies were $3.5 billion on June 30, 1952, while those of closed-end companies were $.9 billion.[28]

TABLE II

SHAREHOLDERS, NET ASSETS, AND GROWTH OF LEADING MUTUAL FUNDS, 1940–1952

Year	*Number of Funds*	*Number of Shareholders*	*Net Assets (in thousands)*	*Percentage Annual Growth*
1940	68	296,056	$447,959	——
1941	68	293,251	401,611	−10.4
1942	68	312,609	486,850	21.2
1943	68	341,435	653,653	34.4
1944	68	421,675	882,191	34.9
1945	73	497,875	1,284,185	45.6
1946	74	580,221	1,311,108	2.2
1947	80	672,543	1,409,165	7.5
1948	87	722,118	1,505,762	6.9
1949	91	842,198	1,973,547	31.6
1950	98	938,651	2,530,563	28.2
1951	103	1,110,432	3,129,629	23.3
1952 (June)	103	——	3,510,593	12.2 (6 mos.)

Source: National Association of Investment Companies, 161 Broadway, New York. Growth percentages calculated by me.

There are several reasons for this remarkable growth. There has been, with only occasional interruptions, a long-run favorable market for stocks, and mutual funds tend to concentrate on stocks. Also, the investment trusts stress their ability to provide professional management and diversification of risk.[29] This advantage attracts investors who want the higher return of good common stocks and hope for a rise in market values and yet doubt their own ability to choose wisely.

[27] Hearings of Subcommittee of Committee on Interstate and Foreign Commerce of House of Representatives, 76th Congress, 3rd Session, on HR 10065. June 13–14, pp. 78–79 and *passim; Business Week,* October 12, 1940, p. 57.

[28] July 14, 1952, Release of National Association of Investment Companies.

[29] Vernon Vivian speaking for Fundamental Investors, a large and successful mutual fund, pointed out that $10,000 invested in the nation's favorite stock, American Telephone and Telegraph Common, on January 1, 1942, would have risen 21 per cent (to $12,124) by December 31, 1951, ten years later, and have paid $6,983 in dividends. The same $10,000 in Fundamental Investors would have risen 164 per cent (to $26,383) and have yielded $7,198 in dividends and also $4,333 in capital distributions (personal interview).

That appeals to the small investors, too, although it is a mistake to assume that these are the chief buyers of mutual shares. The average holding is about $3,000. Dividends range between 3 and 5.5 per cent.

The mutual funds are still subjects of controversy. Critics say that mutuals have not been tested by a really serious stock-market storm and express the fear that, if one occurred, redemption demands would force the mutuals to sell large blocks of stock on short notice with disastrous consequences to the market and themselves. The mutuals reply that they weathered the storm of 1937—and some older ones rode out the hurricane of 1929 as well—and the squalls of 1946 and 1949 quite satisfactorily and their shareholders are investors and not easily panicked.[30]

TABLE III

INVESTMENT ASSETS OF LEADING SAVINGS INSTITUTIONS, 1940–1952

(IN BILLIONS)

Institution	*December 1940*	*December 1950*	*June 1952*
Life insurance	$30.8	$64.0	$70.3
Savings accounts	27.7	56.5	61.2
Government E & H bonds	none	34.5	57.7
Savings and loan associations	4.3	14.0	17.6
Mutual funds	.4	2.5	3.5

Sources: Life Insurance Fact Book; Spectator, September, 1952; *Business Week,* May 17, 1952, p. 148; *Treasury Bulletin; Federal Reserve Bulletin;* National Association of Investment Companies; National Industrial Conference Board, *The Economic Almanac for 1950;* and United States Savings and Loan League, *Quarterly Letter.*

Despite their rapid growth, the mutual funds do not yet have the billions at their disposal that some other savings institutions do, as can be seen from Table III. But currently they are growing at a more rapid rate. The good ones provide an important new way for the investor, large or small, to invest in American business and share in its growth. Such investors get professional advice and the benefits of diversification at bargain rates, both of which should increase their chances of success.

VI

Brokerage houses would, of course, rather have the public buy their stocks individually and directly through them. Yet until the formation

[30] *Fortune,* December 1949, pp. 117 ff.; *Business Week,* July 16, 1949, pp. 70–71; June 30, 1951, p. 92; February 9, 1952, p. 120; July 12, 1952, pp. 112 ff.

of Merrill Lynch, Pierce, Fenner and Beane in 1941 the brokers had done relatively little to educate the public on the merits of corporate securities. The reason was that the business of the 5- and 10-share buyer was hardly worth cultivating. This house undertook that job and became widely known for its activities. It is familiarly known as "We, the People," "The Thundering Herd," or simply Merrill Lynch, but prefers to be called the "Department Store of Securities." To be able to serve many small buyers profitably, it has installed rows of IBM and teletype machines. It even has escalators between floors. It spends hundreds of thousands on advertising, conducts free courses in investing, and has 108 branches scattered over the country. Merrill Lynch is the biggest brokerage house in the country: it did almost 10 per cent of the round-lot business on the New York Stock Exchange in 1951 and 15 per cent of the odd-lot business. It is also the third largest investment banking house in New York. Merrill Lynch is unquestionably playing an important role in promoting more widespread ownership of corporate securities in the United States.[31]

VII

Despite the efforts of various financial institutions, there are not a large number of stockholders in the United States. Indeed, until this year, no one had more than a shrewd guess how many there were. Berle and Means had estimated in 1927 that there were 4–6 million; the Twentieth Century Fund guessed 5–6 million in 1935; the Temporary National Economic Committee made four estimates varying from 5–11 million in the late 1930's, and the Federal Reserve System guessed between 4.5 and 5.4 million on three occasions in 1947–1950.[32] None of these took a census or made an extensive survey. It remained for a college president, George Keith Funston of Trinity College, Connecticut, now head of the New York Stock Exchange, to see that was done. At his request the Brookings Institution undertook the study. Brookings got reports on 3,954 stock issues. That is about a quarter of the 16,655 issues listed in Moody's Manuals of 1950 as being of appreciable public interest. It sent questionnaires to 20 stock exchanges, 2,991 corporations, and numerous banks, investment houses, and others.

[31] 1951 *Annual Report* of Merrill Lynch, Pierce, Fenner and Beane. Also interviews with several employees, present and past. *Business Week*, February 18, 1950, p. 102; March 11, 1950, p. 112.

[32] Lewis H. Kimmel, *Share Ownership in the United States* (Washington, D.C.: Brookings Institution, 1952), pp. 138–40.

Lewis H. Kimmel wrote the final report. Some of the findings are pertinent here.

The Brookings investigators concluded that there were about "6,490,000 individuals in the United States who are share owners in publicly owned corporations." That is about 4.2 per cent of the population. Men slightly outnumber women as shareholders. Somewhat over a quarter of the population over fifty years of age own stock. Persons who finished high school or college are more apt to own stock than those of less education. The higher a man's income, the more likely it is that he owns stock. Families with incomes of $5,000 to $10,000 constitute 44 per cent of all stockholders. By profession, administrators, professional men, salesmen, and merchants are most likely to own stock. Very few unskilled or semiskilled workers own stock. Shareholding is fairly evenly distributed geographically except that the Far West is below average. Owning stock is more common in metropolitan than in rural areas. About half (46 per cent) of all stockholders own only one issue. There are only about a million persons who own five issues or more.

The reasons why people acquired stock are revealing. First, they sought a rise in market value; second, they wanted the income from the dividends; third, they were given it or inherited it. Only one per cent acquired stock as a hedge against inflation.[33]

Judging by the record of 45 large corporations, and this is only a rough criterion, stock ownership has about doubled in the last twenty-one years.[34]

VIII

The changed conditions of the last twenty-two years, namely, higher taxes, lower interest rates, a depreciating dollar, the presence of the Securities and Exchange Commission, the scarring memory of 1929–1933, and fear of another depression have profoundly affected the handling of capital funds. Big investors like insurance companies seek to buy more directly, trust companies are trying to enlarge their authority to protect the purchasing power of the funds they are entrusted with, the investment trust has appeared to give the investor the professional assistance and diversification that he needs at lower

[33] *Ibid.*, p. 89, *passim.*
[34] *Ibid.*, pp. 129–31.

cost, and the citizen with an above-average income is beginning to show more interest in stocks again.[35]

Financial middlemen are encountering the same fate as those in merchandising. When buyers begin to buy in large amounts, there is need for fewer intermediaries between consumer and producer and some middlemen are eliminated. The investment banking class is suffering. Other middlemen have found that the only way to survive is to increase efficiency and to make many small sales to somewhat lower income groups.

In this third stage of the financial revolution, the forces that threaten capital are different from those in the second stage. The Securities and Exchange Commission can and does protect investors from many of the old dangers but can do little about the new ones. The only way that private capital can partially protect itself from undue erosion by high taxes, low interest rates, and depreciating dollars is through the new methods and new institutions that have been developed. Financiers are today acting more responsibly and sensibly in protecting the money of others (and their own too) than perhaps ever before in our history.

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[35] According to the University of Michigan Research Center, in 1949 six out of ten holders of savings bonds listed that type of security as their first investment choice. By 1951 the proportion had dropped to four out of ten. On the other hand, the "pollsters" found that, whereas in 1949 only one out of nine persons interviewed preferred to invest in stocks or real estate, assets whose value fluctuated considerably, by 1951 one out of four preferred stocks and real estate. "1952 Survey of Consumer Finances," *Federal Reserve Bulletin*, July 1952, pp. 743 ff.

Index to Volume XII

ARTICLES:

Bamford, Paul Walden, France and the American Market in Naval Timber and Masts, 1776–1786 21
Buttrick, John, The Inside Contract System 205
Clark, M. Gardner, Development of Large-Scale Organization: The Soviet Steel Industry 396
Hallgarten, George W. F., Adolph Hitler and German Heavy Industry, 1918–1933 . . . 222
Hamilton, Earl J., Prices as a Factor in Business Growth: Prices and Progress 325
Hidy, Ralph W., Development of Large-Scale Organization: The Standard Oil Company (New Jersey) 411
Kemmerer, Donald F., American Financial Institutions: The Marketing of Securities, 1930–1952 454
Kuznets, Simon, National Income Estimates for the United States Prior to 1870 115
Lewis, Ben W., Development of Large-Scale Organization: Economic Implications . . . 425
Nettels, Curtis P., British Mercantilism and the Economic Development of the Thirteen Colonies 105
Passer, Harold G., Development of Large-Scale Organization: Electrical Manufacturing Around 1900 378
Patterson, Robert T., Government Finance on the Eve of the Civil War 35
Perloff, Harvey S., The United States and the Economic Development of Puerto Rico . . 45
Redlich, Fritz, American Financial Institutions: Bank Administration, 1780–1914 . . . 438
Reynolds, Robert L., Origins of Modern Business Enterprise: Medieval Italy 350
Salin, Edgar, Origins of Modern Business Enterprise: European Entrepreneurship . . . 366
Smith, Thomas C., The Japanese Village in the Seventeenth Century 1
Sorenson, Lloyd R., Some Classical Economists, Laissez Faire, and the Factory Acts . . 247
Spiethoff, Arthur, The "Historical" Character of Economic Theories 131

NOTES AND REVIEW ARTICLES:

Eberhard, Wolfram, The Money and Economy of China Under the Mongols 60
Gerschenkron, Alexander, An Economic History of Russia 146
Kracke, E. A., Jr., The Early Economic History of China 160
Rae, John B., The Great Northern's Land Grant 140
Ratner, Sidney, The Economic History of the Second World War 263
Somers, Harold M., What Generally Happens During Business Cycles—and Why . . . 270

BIBLIOGRAPHY:

Martin, Mulford, Recent Publications in Economic History 98, 196, 319

REVIEWS OF BOOKS:

Abramovitz, Moses, Inventories and Business Cycles. Reviewed by Harold Somers . . 272
Alpert, Paul, Twentieth Century Economic History of Europe. Reviewed by Ralph H. Bowen 184
Arcila Farias, Eduardo, Comercio entre Venezuela y Mexico en los Siglos XVII y XVIII. Reviewed by Clinton Harvey Gardiner 195
Aspinall, Arthur, The Early English Trade Unions: Documents from the Home Office Papers in the Public Record Office. Reviewed by Judith B. Williams 88
Austin, Aleine, The Labor Story: A Popular History of American Labor, 1786–1949. Reviewed by Harold U. Faulkner 176

BARGER, HAROLD, The Transportation Industries, 1889–1946, A Study of Output, Employment, and Productivity. Reviewed by John G. B. Hutchins 86
BECKINSALE, R. P., ed., The Trowbridge Woollen Industry. Reviewed by George S. Gibb 297
BELTING, NATALIA MAREE, Kaskaskia Under the French Regime. Reviewed by Richard B. Morris 82
BERNARD, WILLIAM S., ed., American Immigration Policy: A Reappraisal. Reviewed by G. Wallace Chessman 83
BEZANSON, ANNE, Prices and Inflation During the American Revolution, Pennsylvania, 1770–1790. Reviewed by Chester W. Wright 66
BLACK, JOHN D., The Rural Economy of New England; A Regional Study. Reviewed by Clarence H. Danhof 179
BRADY, CYRUS TOWNSEND, JR., Commerce and Conquest in East Africa. Reviewed by Holden Furber 310
BRAUDEL, FERNAND, AND RUGGIERO ROMANO, Navires et marchandises à l'entrée du port de Livourne (1547–1611). Reviewed by Violet Barbour 306
CALLAWAY, JAMES ETHERIDGE, The Early Settlement of Georgia. Reviewed by Richard B. Morris 83
CAMMANN, SCHUYLER, Trade Through the Himalayas: The Early British Attempts to Open Tibet. Reviewed by Earl H. Pritchard 186
CAROSSO, VINCENT P., The California Wine Industry, 1830–1895: A Study of the Formative Years. Reviewed by George Sweet Gibb 168
CASEY, ROBERT JOSEPH, AND W. A. S. DOUGLAS, The Lackawanna Story. Reviewed by Joseph T. Lambie 299
CHALONER, W. H., The Social and Economic Development of Crewe, 1780–1923. Reviewed by C. P. Wright 315
CHANG, TSE CHUN, Cyclical Movements in the Balance of Payments. Reviewed by W. W. Rostow 285
CHEVALIER, LOUIS, La Formation de la population parisienne au XIXe siècle. Reviewed by David H. Pinkney 81
CHOMEL, VITAL, AND JEAN EBERSOLT, Cinq siècles de circulation internationale vue de Jougne. Reviewed by Robert S. Smith 309
CIVILIAN WAR TRANSPORT: A Record of the Control of Domestic Traffic Operations by the Office of Defense Transportation, 1941–1946. Reviewed by Sidney Ratner 270
CLELAND, ROBERT GLASS, The Irvine Ranch of Orange County, 1810–1950. Reviewed by Vincent P. Carosso 298
COHEN, JEROME B., Japan's Economy in War and Reconstruction. Reviewed by Sidney Ratner 265
CONNERY, ROBERT H., The Navy and Industrial Mobilization in World War III. Reviewed by Sidney Ratner 268
COOKE, C. A., Corporation, Trust and Company. Reviewed by Roland W. Boyden . . . 171
CORLISS, CARLTON J., Main Line of Mid-America. Reviewed by Joseph T. Lambie . . . 299
CREAMER, DANIEL, Behavior of Wages Rates During Business Cycles. Reviewed by Harold Somers 277
DE SMEDT, OSKAR, De Engelse Natie te Antwerpen in de 16e Eeuw (1496–1582). Reviewed by Violet Barbour 308
DICKERSON, OLIVER M., The Navigation Acts and the American Revolution. Reviewed by Merrill Jensen 190
DODD, A. H., The Industrial Revolution in North Wales. Reviewed by J. B. Brebner . . 314
DOSTER, JAMES F., Alabama's First Railroad Commission, 1881–1885. Reviewed by Joseph T. Lambie 95
EUCKEN, WALTER, The Foundations of Economics—History and Theory in the Analysis of Economic Reality. Reviewed by Raymond T. Bye 286

FAULKNER, HAROLD U., The Decline of Laissez Faire, 1897–1917. Reviewed by Eric F. Goldman 165
FEDERAL RECORDS OF WORLD WAR II—Vol. I: Civilian Agencies (1950); Vol. II: Military Agencies (1951). Reviewed by Sidney Ratner 270
FRANKE, HERBERT, Geld und Wirtschaft in China unter der Mongolen-Herrschaft: Beiträge zur Wirtschaftsgeschichte der Yüan-Zeit. Reviewed by Wolfram Eberhard 60
GALENSON, WALTER, The Danish System of Labor Relations. Reviewed by Joel Colton . . 305
GEORGE, M. DOROTHY, London Life in the XV[illegible] Century. Reviewed by John G. Gazley 175
GERSCHENKRON, ALEXANDER, A Dollar Inde[illegible] Soviet Machinery Output, 1927–28 to 1937. Reviewed by Irving H. Siegel 283
GIBLIN, L. F., The Growth of a Central Bank. Reviewed by Karl R. Bopp 303
GLOVER, JOHN GEORGE, AND WILLIAM BOUCK CORNELL, eds., The Development of American Industries. Reviewed by Harold F. Williamson 168
GOING, ALLEN JOHNSTON, Bourbon Democracy in Alabama, 1874–1890. Reviewed by A. D. Kirwan 181
GRAHAM, GERALD S., Empire of the North Atlantic: The Maritime Struggle for North America. Reviewed by Wesley Frank Craven 185
GREENBERG, MICHAEL, British Trade and the Opening of China, 1800–42. Reviewed by Earl H. Pritchard 186
HALLER, WILLIAM, JR., The Puritan Frontier: Town-Planting in New England Colonial Development, 1630–1660. Reviewed by Anthony N. B. Garvan 85
HANCOCK, W. K., AND M. M. GOWING, British War Economy. Reviewed by Sidney Ratner 263
HARROD, ROY F., The Life of John Maynard Keynes. Reviewed by Dudley Dillard . . . 74
HECHT, REUBEN W., AND GLEN T. BARTON, Gains in Productivity of Farm Labor. Reviewed by Clarence H. Danhof 181
HERRING, HARRIET L., Passing of the Mill Village. Reviewed by Vera Shlakman . . . 178
HERTZ, FREDERICK, The Economic Problem of the Danubian States: A Study in Economic Nationalism. Reviewed by C. E. Black 182
HOPKINS, JAMES F., A History of the Hemp Industry in Kentucky. Reviewed by Thomas P. Martin 169
HOWE, IRVING, AND B. J. WIDICK, The U. A. W. and Walter Reuther. Reviewed by William M. Leiserson 89
HUTNER, FRANCES CORNWALL, The Farr Alpaca Company. Reviewed by Hugh G. J. Aitken 297
JEFFERYS, JAMES B., ed., Labour's Formative Years: Nineteenth Century, 1849–1879. Reviewed by Elizabeth Brandeis 177
JOHN, A. H., The Industrial Development of South Wales, 1750–1850. Reviewed by J. B. Brebner 314
KAY, F. GEORGE, Royal Mail. Reviewed by Grace Fox 313
KLEIN, LAWRENCE R., Economic Fluctuations in the United States, 1921–1941. Reviewed by George Soule 291
LANE, FREDERIC C., Ships for Victory. Reviewed by John G. B. Hutchins 164
LEONTIEF, WASSILY W., The Structure of American Economy, 1919–1939: An Empirical Application of Equilibrium Analysis. Reviewed by Solomon Fabricant 69
LEPAWSKY, ALBERT, State Planning and Economic Development in the South. Reviewed by Carter Goodrich 93
LEROY, EDWIN D., The Delaware and Hudson Canal: A History. Reviewed by Anthony J. Bryski 87
LEVY, A. B., Private Corporations and Their Control. Reviewed by Roland W. Boyden . . 171
LEWIS, ARCHIBALD R., Naval Power and Trade in the Mediterranean, A.D. 500–1100. Reviewed by Frederic C. Lane 65
LITTLE, JAMES A., AND HENRY M. CUNNINGHAM, Historical Development of Transport Coordination and Integration in the United States. Reviewed by W. N. Leonard . . . 95

LLOYD, ARNOLD, Quaker Social History, 1669–1738. Reviewed by Frederick B. Tolles . . 71
LYASHCHENKO, PETER I., History of the National Economy of Russia to the 1917 Revolution. Reviewed by Alexander Gerschenkron 146
LYASHCHENKO, PETER I., History of the National Economy of the U.S.S.R. (2 vols.) I: Precapitalistic Formation; II: Capitalism. Reviewed by Alexander Gerschenkron . . . 146
MCGINLEY, JAMES J., Labor Relations in the New York Rapid Transit Systems, 1904–1944. Reviewed by William M. Leiserson 89
MANSFIELD, HARVEY C., A Short History of O.P.A. Reviewed by Edward S. Mason . . 301
MASEFIELD, G. B., A Short History of Agriculture in the British Colonies. Reviewed by Holden Furber 310
MERRITT, WALTER GORDON, Destination Unknown: Fifty Years of Labor Relations. Reviewed by Harold U. Faulkner 176
MILLER, JOHN PERRY, Pricing of Military Procurements. Reviewed by Sidney Ratner . . 269
MILLER, WILLIAM, ed., Men in Business. Reviewed by Donald L. Kemmerer 292
MILLS, RANDALL V., Railroads down the Valleys. Reviewed by Joseph T. Lambie . . . 299
MINTZ, ILSE, Deterioration in the Quality of Foreign Bonds Issued in the United States, 1920–1930. Reviewed by Harold Somers 276
MITCHELL, SYDNEY KNOX, Taxation in Medieval England. Reviewed by Sylvia L. Thrupp 312
MITCHELL, WESLEY C., What Happens During Business Cycles. Reviewed by Harold Somers 270
MOORE, WILBERT E., Industrialization and Labor: Social Aspects of Economic Development. Reviewed by Sanford A. Mosk 166
MUDGETT, BRUCE D., Index Numbers. Reviewed by Irving Siegel 69
NEFF, PHILIP, AND ANNETTE WEIFENBACH, Business Cycles in Selected Industrial Areas. Reviewed by George Soule 291
NOVICK, DAVID, AND GEORGE A. STEINER, Wartime Industrial Statistics. Reviewed by Sidney Ratner 269
NUSSBAUM, ARTHUR, Money in the Law: National and International. A Comparative Study in the Border of Law and Economics. Reviewed by Joseph Dorfman 93
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RAISTRICK, ARTHUR, Quakers in Science and Industry: Being an Account of the Quaker Contributions to Science and Industry during the 17th and 18th Centuries. Reviewed by Frederick B. Tolles 71
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ROGGE, J., Het Handelshuis Van Eeghen. Reviewed by Jelle C. Riemersma 295
SALOUTOS, THEODORE, AND JOHN D. HICKS, Agricultural Discontent in the Middle West, 1900–1939. Reviewed by Earle D. Ross 91
SAUNDERS, LAURANCE JAMES, Scottish Democracy, 1815–1840. Reviewed by R. K. Webb . 317
SCHLATTER, RICHARD, Private Property: The History of an Idea. Reviewed by Roland W. Boyden 173
SCHRAMM, PERCY ERNEST, Deutschland und Übersee. Reviewed by Holden Furber . . 310
SCHWEPPE, EMMA, The Firemen's and Patrolmen's Unions in the City of New York: A Case Study in the Public Employee Unions. Reviewed by William M. Leiserson . . 89
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SOMBART, WERNER, The Jews and Modern Capitalism. Reviewed by Ellis Rivkin . . . 174

SOMERS, HERMAN MILES, Presidential Agency: OWMR. Reviewed by Sidney Ratner . . 267
SWANN, NANCY LEE, trans. and annotator, Food and Money in Ancient China. Reviewed by E. A. Kracke, Jr. 161
THORNER, DANIEL, Investment in Empire: British Railway and Steam Shipping Enterprise in India, 1825–1849. Reviewed by John G. B. Hutchins 192
TINBERGEN, JAN, The Dynamics of Business Cycles. Reviewed by Harold Somers . . . 278
TITMUSS, RICHARD M., Problems of Social Policy. Reviewed by Sidney Ratner 263
ULAM, ADAM B., Philosophical Foundations of English Socialism. Reviewed by J. B. Brebner 78
VOZNESENSKY, NIKOLAI A., The Economy of the USSR During World War II. Reviewed by Sidney Ratner 266
WARD, W. E. F., A History of the Gold Coast. Reviewed by Holden Furber 310
WATERS, L. L., Steel Trails to Santa Fe. Reviewed by Joseph T. Lambie 299
WEULERSSE, GEORGES, La Physiocratie sous les ministères de Turgot et Necker (1774–1781). Reviewed by Martin Albaum 77
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ZWEIG, FERDINAND, Economic Ideas: A Study of Historical Perspectives. Reviewed by William Diamond 75

CONTRIBUTORS:

Articles are marked (a); notes and review articles (b); reviews of books (c); bibliographies (d).

Aitken, Hugh G. J., 297 (c)
Albaum, Martin, 77 (c)
Bamford, Paul Walden, 21 (a)
Barbour, Violet, 306, 308 (c)
Black, C. E., 182 (c)
Bodde, Derk, 63 (c)
Bopp, Karl R., 303 (c)
Bowen, Ralph H., 184 (c)
Boyden, Roland W., 171, 173 (c)
Brandeis, Elizabeth, 177 (c)
Brebner, J. B., 78, 314 (c)
Bryski, Anthony J., 87 (c)
Buttrick, John, 205 (a)
Bye, Raymond T., 286 (c)
Carosso, Vincent P., 298 (c)
Chessman, G. Wallace, 83 (c)
Clark, M. Gardner, 396 (a)
Colton, Joel, 305 (c)
Craven, Wesley F., 185 (c)
Danhof, Clarence H., 179, 181 (c)
Degler, Carl N., 79 (c)
Diamond, W., 75 (c)
Dillard, Dudley, 74 (c)
Dorfman, Joseph, 93 (c)
Eberhard, Wolfram, 60 (b)
Fabricant, Solomon, 69 (c)
Faulkner, Harold U., 176 (c)
Fox, Grace E., 313 (c)
Furber, Holden, 310 (c)
Gardiner, Clinton H., 195 (c)
Garvan, Anthony N. B., 85 (c)
Gazley, John G., 175 (c)
Gerschenkron, Alexander, 146 (b)
Gibb, George Sweet, 168, 297 (c)
Goldman, Eric F., 165 (c)
Goodrich, Carter, 93 (c)
Hallgarten, George W. F., 222 (a)
Hamilton, Earl J., 325 (a)
Harper, Lawrence A., 193 (c)
Hidy, Ralph W., 411 (a)
Hutchins, John G. B., 86, 164, 192 (c)
Jensen, Merrill, 190 (c)
Kemmerer, Donald L., 454 (a), 292 (c)
Kirkland, Edward C., 170 (c)
Kirwan, A. D., 181 (c)
Kracke, E. A., Jr., 160 (b)
Kuznets, Simon, 115 (a)
Lambie, Joseph T., 95, 299 (c)
Lane, Frederic C., 65 (c)
Leiserson, William M., 89 (c)
Leonard, W. N., 95 (c)
Lewis, Ben W., 425 (a)

Martin, Mulford, 98, 196, 319 (d)
Martin, Thomas P., 169 (c)
Mason, Edward S., 301 (c)
Morris, Richard B., 82, 83 (c)
Mosk, Sanford A., 166 (c)
Nettels, Curtis P., 105 (a)
Passer, Harold C., 378 (a)
Patterson, Robert T., 35 (a)
Perloff, Harvey S., 45 (a)
Pinkney, David H., 81 (c)
Pritchard, Earl H., 186 (c)
Rae, John B., 140 (b)
Ratner, Sidney, 263 (b)
Redlich, Fritz, 438 (a)
Reynolds, Robert L., 350 (a)
Riemersma, Jelle C., 295 (c)
Rivkin, Ellis, 174 (c)
Ross, Earle D., 91 (c)
Rostow, W. W., 285 (c)
Salin, Edgar, 366 (a)
Schmookler, Jacob, 289 (c)
Shlakman, Vera, 178 (c)
Siegel, Irving H., 69, 283 (c)
Smith, Robert S., 309 (c)
Smith, Thomas C., 1 (a)
Somers, Harold M., 270 (b)
Sorenson, Lloyd R., 247 (a)
Soule, George, 291 (c)
Spiethoff, Arthur, 131 (a)
Still, Bayrd, 304 (c)
Thrupp, Sylvia, 312 (c)
Tolles, Frederick B., 71 (c)
Webb, R. K., 317 (c)
Williams, Judith B., 88 (c)
Williamson, Harold F., 168 (c)
Wright, C. P., 315 (c)
Wright, Chester W., 66 (c)

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